THIS PAGE INTENTIONALLY LEFT BLANK

3

Spectr. Temp.

Focus.....

Spectr. Temp.

Exp. Mtr.	Seei

pectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions 4

ocus .....

pectr. Temp. ..... Dome Temp./Hum. .....

xp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
							David	Dunlap	observatory		
							74"	Logbook			
							Vol.	62			
							Plate	Nos	50262 — 50540		
							May	1988	— April 1989		

5

Tues-Wed

Date MAY 24/25/88 ... Observers Nsr.-Tn. .....

Emulsion Batches:

1.80, 0.25 II.aa-e. 2A7.-APR28

Dev on NY 26 Tn 2.47, 0.14 III.as-esg. 2J5.-MAR15

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comp Cats Exp.
50262F	Focus test			20 00		0 0	+27 30	Fe Arc Clear	3700 3300
50262	HD 8890	01 22.6	+88 46	20 44	20 56	10 48 W	+89 10	"	1st only 3000
50263	"	"	"	20 58	21 08	11 00 W	"	"	1550 1600
50263T	Spot Cal'n For 50262-63; 50265-68, 71-73.					15 min @ 15V D4 3900	D3 4300	D2 4810	
50264	HD 112028	12 48.3	+83 58	21 23	22 32	01 38 W	+83 22	Fe Arc Clear	1550 3200
50264T	Spot Cal'n For 50264.					15 min @ D4 3900	17.5V 4300	15V 4810	15V

Spectr. Temp.
Focus.....
Spectr. Temp.

Exp. Mtr.	Se
370/330	
10,200	A
10,573	A
7,300	A

Spectr. Temp. 60°f ..... Dome Temp./Hum. 160°f H=55% Transparency Conditions Fine, the cloudy 6
V gusty from NW

Focus ..... 391 .....

Spectr. Temp. 52°f ..... Dome Temp./Hum. 150°f H=90%

Comparison Type/Filter	Comparison Exp.	B Filter Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe Arc Clear	3700 3300	3700/3300				BC	1200/5048	BS	IIaO	1			Contorted
"	Lt only 3000	10,200	poor	2	F	"	"	"	IIaO-e	1	Asm Sp-Kk	Reversed	
"	1550 1600	10,573	poor	"	"	"	"	"	"	1	"	"	
2 10									"				vv
Fe Arc Clear 156 4810	1550 3300	9,300	poor	5.28	B8	BC	1200/5048	BS	IIIa d-efg	1	Shell-Bln	Reversed - Cloudy	
									IIIa d-efg			Rain by 0:30	vv

7 Wed - Thurs

Date MAY. 25-26. 1988 Observers NSF - TM

Emulsion Batches:
D 2v MAY 26 TM
II a O 2A7 APR 28
III aJ-cg 1A7 APR 25 252, 0, 12

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50265	HD 8890	01 22.6	+88 46	20 19	20 24	10 21W	+89 02	Fe Arc Clear	1500 1600
50266	"	"	"	20 27	20 33	10 30 W	"	"	1584 1560
FM 000049.TN	BS 4846	1988 12 44.6	1988 +45 30	20 50		0003W	+45 41	4 frames	X4 Int
50.TN	HD 103095	11 47.2	+38 26	21 00		01 06W	+37 59	"	"
50267	"	"	"	21 09	23 35	03 40W	"	Fe Arc Clear	1100 1200 1160
50268	HD 122742	13 58.6	+11 16	23 42	02 25	04 44W	+11 02	"	1150 1200 1160
50269	HD 159561	17 30.3	+12 38	02 32	02 39	01 02W		"	2000 2000
50269T	Spot Calib for	50269-50270.		15 min @	DA	17.5W 3900 15W 4300	15W 4810		
FM 000051.TN	HD 175740	18 51.7	+41 28	02 54		0 0	+41 45		~~2000~~ 2100
50270	HD 182640	19 20.5	+2 55	02 59	03 28	00 05W		Fe Arc Clear	2000 2000
50271	HD 161096	17 38.5	+4 37	03 33	03 44	02 00W	+4 46	"	1500 2100
FM 000052.TN	BS 7653	1988.5 20 00.6	+27 43	03 55		0 0	+27 50	4 frames	Int X4

Spectr. Temp. 53°f ..... Dome Temp./Hum. +10°c / 60% H Transparency Conditions. Fine ..... sl gusty 8

Focus ..... 391 - 393 .....

Spectr. Temp. 47°f ..... Dome Temp./Hum. +1°c / 80% Note I enter only the best of a few seeing test images. Blurred ones prob drive error effects. no wind for 2nd seeing test,

Exp. Mtr. Blue filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
10,200	so so	2	F	BC	1200/50-8	BS	IIaO-e	1	Asm Sp-tkt	Reversal	
10,300	"	"	"	"	"	"	"	1	"	"	✓
31x31 pixels	ok	V= 4.99	C5,5	Image Aquisit'n View, carefully focussed					seeing test	sl windy?	
"	"	7:20	G8 II	"	"	"	"	"	" "	no wind	
3530 3500	"	"	"	BC	1200/50-8	BS	IIaO-e	1.	Asm Sp tkt	broken 2 pcs (T=53°f)	✓ sl wk
3000 2000	poor	6.8	G8 V	"	"	"	"	1	"	set 393 T=50°f	comp ok fine
30,200	"	2.2	A5 III	"	"	"	IIIaJ-efg	1	"		✓
							IIIaJ-efg				" ✓
10,500	ok	V= 5.45		Image Aquisit'n View					seeing test	(no wind)	
35,000	so so	3.68	F0 IV	BC	1200/50-8	BS	IIIaJ-efg	1	Asm Sp tkt		✓ comp ok fine
10,500	ok	3.93	K2 III	"	"	"	IIaO-e	1	std vel	T=47°f	✓ "
31x31 pixels	so so	V 4.6	A4	Image	Aquisition	View			Seeing Test	(No wind)	

Comparison Type/Filter	Exp.
Fe Arc Clear	1500 1600
"	1587 1560
1 frame	x4 Init
"	"
Fe Arc Clear	1100 1200 1160
"	1150 1200 1160
"	2000 2000
	~~2000~~ 2000
Fe Arc Clear	2000 2000
"	1500 2100
1 frame	Init x4

THURS./FRI.

Date MAY 26-27/88 Observers T.N. - NSR

Dev MAY 31 Tn

Dev Jun 1 Tn

Emulsion Batches:

II o-e 2A7 - APR 28

III ad-exp 1A7 - APR 25

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. Blue Filter
50272	HD 8890	01 22.6	+88 46	00 53	00 58	E	+89 22	Fe Arc CLEAR	1600 1600	10800
50273	"	"	"	01 03	01 07	09 20E	"	"	1680	10200
FM0000 53.TN	HD 156891			01 30		00 04W	+39°	x4 for	Int	
FM0000 54.TN	"				01 32	00 06W	"	"	"	
50274	α Oph. HD 159561	17 30.3	+12 38	01 38	01 44	00 12 W		Fe Arc CLEAR	2240 2300	33000
50275	HD 182640	19 20.5	+ 2 55	01 53	02 26	00 56 E	+3 16	"	1700 1500 1700	16,400 16,300
50275 T	Spot Cal'n for	50274-75 + 50276-77, 80 (next night)				15min@D4	17.5V 3900	15V 4300	15V 4810	
50275F	Focus test			02 35		00 55W	+4 46	Fe Arc Clear	4000 4000	

Spectr. Temp

Focus.....3

Spectr. Temp

Spectr. Temp. 60°F Dome Temp./Hum. +13°C / 50% Transparency Conditions HAZY - CLOUDY VERY LIGHT BREEZES SW.

Focus 390

Spectr. Temp. 60°F Dome Temp./Hum. +13°C

Exp. Mtr. BLUE FILTER	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
10800	OK	2	F	BC	1200/ 50.8	BS	II aO-a	1	Asm Sp-KK	SPOT CAL'N #5026JT	✓ OK
10200	OK	"	"	"	"	"	"	"	"	" " "	✓ OK
	OK	Image Aquisitn mode			31×31	pixels			Seeing Test	Can be deleted - Same as 1st 4	on 54-Tn
	OK				"	"			" "	4 frames + 4 frames	
33 000	OK	2.2	A5 III	BC	1200/50.8	BS	III aJ-afg	1	Asm Sp KK		
16,400											
16,300	OK	3.68	F0 IV	"	"	"	III aJ-afg	1	"	clouds	
							III aJ-efg				
				BC	1200/50.8	BS	II aO	1		T=60° Set 390	sl Red

Comparison Type/Filter	Exp.
Fe Arc	1600
CLEAR	1600
"	1680
x4 for	Int
"	"
Fe Arc	2240
CLEAR	2300
	1700
"	1300
	1700
SV	150
300	4810
Fe Arc	4000
Light	4000

11

FRI. / SAT.

Date MAY 27-28/88 Observers TN-NSR

Dev Jan 1 Tn

Dev MAY 31 Tn 1.56, 0.24

Emulsion Batches:

IIaS-e.g. JA7-APR 25

IIaO-e JA7 MAY 25

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50276	HD 86360	09 52.9	+12 55	20 33	22 55	05 03 W	+12 24	Fe Arc CLEAR	←
50277	HD 112028	12 48.3	+83 58	23 08	02 09	05 33 W	+83 22	Fe Arc CLEAR	1700 1750 1730
FM0000 55 FM	"	"	"	02 13			"		
50278	HD 8890	01 22.6	+88 46	02 27	02 42	07 42 E	+88 21	Fe Arc Clear	1680 1700
50279	"	"	"	02 44	02 55	07 29 E	"	Fe Arc CLEAR	1660 1730
50279T	Spot Calib	for 50278-79,81			15 min @	D4 15V 3400	D3 4300	D2 4810	
50280	HD 159561	17 30.3	+12 38	03 03	03 14	01 44 W	+12 44	Fe Arc clear	2300 2300
50281	HD 161096	17 38.5	+4 37	03 20	03 35	01 59 W	+	"	1800 1800
50281F	Focus test			03 40		"	"	"	3400 8500

Spectr. Temp. ....73°....F.... Dome Temp./Hum. +18°C / 40% Transparency Conditions .HAZY....-..CLOUDY.....

Focus .....387.....

Spectr. Temp. 65.5°...F..... Dome Temp./Hum. +15°C / 60%

Exp. Mtr. BLUE FILTER		Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
1600 1700 1700	17 125 5 500	OK	5.22	B9 IV	BC	1200/50.8	BS	III a-J a-f-g	1	SB - Bln	Reversed / cloud	
17000 9,222		OK TO POOR	5.28	B8	BC	1200/48	BS	III a-J a-f-g	1	Shell - Bln	" [Br+one of Pair] "	Slwk
47×47 pix		5.50	"	"	For Scale of Image			Aqua View		"	Cloudy	
10 300		OK	2	F	BC	1200/50.8	BS	IIa O-e	1	Asm Sp-kk	v cloudy	v ok
9 200		"	"	"	"	"	"	"	1.	"	"	✓
								IIa O-e				✓✓
35 000		OK	2.2	A5 III	BC	1200/50.8	BS	III a-J a-f-g	1	Asm Sp-kk	cloud	OK
8200		"	3.88	K2 III	"	"	"	IIa O-e	1	std vel	"	
					"	"		IIa O	1		set 387	OK

13 Fiber Fed Reticon : 1st Try with Fiber Feed for Reticon (Some ECHELLEX prompts are meaningless in this configuration)

mon - TUES

Date MAY 30/31/88 Observers Jay

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. Counts
	Flat					0 0	platform	Tungsten clear	600sec	4534/8K
	Flat			205852		"	"	"	"	4534/8K
	Flat (not kept)			210950		"	"	"	"	5 Exp/8K
	1st Comp									1451/7K
	Alpha Boo			21 5528	21 5956					
	Alpha Boo			22 0107	2214					
	" "			22 1519	22 22					52/1K
	" "			22 23	2234					70/1K
	" "			2235	2252		Comp at End	Tungsten clear	30 sec	1451/2000
FM1000 58.Th	" "			23				3 FRAMES		47x47
59.Th	MIZAR (For Image acquisition scale)				2315			4 Frames		31x31
60.Th	" (For Fiber Feed Head Scale)				23 22			4 Frames		55x55
61.Th	" (" " ")				2325	02 15W		6 Frames		"
	Flat			2354		0 0	platform	Tungsten clear	600sec	505/8K
	Long DARK			00 08					3600	27/1K
	Long DARK (after topping up)			02					10,000 sec	

Spectr. Temp. ..... Dome Temp./Hum. 176°F/52% Transparency Conditions ... Cloudy - pot clear

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 172°F/55%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. Counts	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit Focus	Emulsion	P.H.	Program	Remarks	Quality
[illegible]	[illegible]	4534/6K				Reticon		BS	Ha		4 Å/mm		
"	"	4594/8K				"		"	"		"		
"	"	5000/8K										Small picket fence	
		1452/2K											
												Not kept - not on fiber	
												in a picket fence	
		52/1K										Pic good - not kept	
		70/1K									Left of type		
Fiber [illegible]	[illegible]	14891/2000									(51 Left of type)	OK	
3 Frames		47x47 pixels	OK	Just (Real time)			Image quality mode				Out of Focus (Donut) Astigmatism Test		
4 Frames		31x31	OK	(4x on Integrator)								could be for seeing test too?	
4 Frames		55x55	So So	(4x on Int)				Fiber Head	(Upper Right star is fainter and both below Slot)				
Frames		"	OK	(" ")		1st 4 are repeat of 60.					1st 2 frames have stars straddling Slot.		
[illegible]	600x2	5051/3K				Reticon		BS	Hα		4 Å/mm	Temp = -4.903	
	360	27/1K										" -4.977	
	10,000 2x												

15

Tues-Wed PCS Pg #1

Date MAY 31/June 1 188. Observers T.n.-N.S.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	Long Flat			15 41 58	17 41 59	0 0	platform	Tungsten A=1/16	7200 sec
	Solar Spectrum	0 0	platform	19 36	20 1644				1800 ~~+600~~
	Long Comp			20 2425		W	+36 ~~30~~ 13	FeA clear	600
	HD 95735	10 57.9	+36 38	20 55	21 25	02 43W	"		1800
FM0000 62TN	"	"	"	20 46	~~21 25~~	W	"	4 frames	Int x4
FM000 63TN\Dst	"	"	"	20 50		W	"	"	"
	"	"	"	21 26	21 56	03 14 W	"	Cont of Stars	1800
	Comp @	End of 1988.5	HD 95735			"	+ "	Fe-A clear	~~180~~ 240
1003	HD 132737	14 59.4	+27 12	22 10	22 40	00 02W	+27 22		1800
64TN	"	"	"	22 42					
65TN	"	"	"	22 46					
	Comp	" 1900	1900	22 44					240
1005	HD 141287	16 00.0	+25 30	22 57	23 27	E +			1800
1006	"	"	"	23 28		W			1200
	Comp	"	"	23 54					400

Spectr. Temp. ..... Dome Temp./Hum. 76°F/60% Transparency Conditions ... hazy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr A	Exp. Mtr B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion (Wave Length Buffer)	P.H.	Program (Chiller Temp)	Remarks	Quality
ing 416	7200						PCS	1800/52°	BS	5000Å	1A	-01.1°C (19:33)	Upper Left Roff is odd	
	1800 +600	500-900					"	"	"	"	1B	-1.3°C	Tel covered (mostly)	
eA eur	600	88	15				"	"	"	"	1A	-1.5°C (21:03) -1.6°C (21:30)		
	1800	*250	16	fine	V= 7.60	M6	"	"	"	"	1A	Asm Sp-kk	* As high as 540 counts ~~Astigmatism test~~	
fiang	Int x4	47x47		"	"	"	OUT of Focus image (switch to the Right)						Astig test	
"	"	31x31		"	"	"							seeing test	
T 1222	1800	200	17	O/K	"	"	PCS	1800/52	BS	5000Å	1A	Asm Sp-kk	Cont of 1st exp. 1st written though	
5-fi ear	2700						"	"	"	"	1B	~~Stel Vel~~	Hazy	
	1800	150	12	SOSO	V= 8.0	KO III	"	"	"	"	1A	Stel Vel	* " [Kept Dec adjs to a minimum]	
												Seeing test	Guide View Fiber Feed Head	
												Seeing test *	Image Aquisition	
	240	85	10								1B	Note RA & Dec -1.7°C	Set motions very nasty	
	1800	300	22	OK	V= 7.07	G5 V					1A	Asm Sp-kk	* Very little RA or Dec Set motion guiding	
	1200	400	15	OK	"	"					1B	"	Aggressive DEC guiding	
	400	80	11								1B			

17 Pg 2

Date May 31 June 1 1988 Observers J.n./Nsr

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
		1988.5	1988.5						
1008	HD 171232	18 32.1	+25 29	00 10 20	00 40	01 25 E	+		1800
	COMP.	"	"	00 45 20	00 51 40				400
1010	HD 171232	18 32.1	+25 29	00 58 19	01 28 25	00 39 E	+25 40		1800
	Comp	"	"	01 30 15	01 36 55			Fe-A Clear	400
66.TN	HD 171232	"	"	01 35				4 Frames	4 x Int
1012	HD 195987	20 29.4	+41 32	~~01 45~~ 02:17	02:47	E	+		1500 ~~1800~~
	COMP	"	"	02 48 39	02 55 14			FeA Clear	400
67.TN	HD 195987	"	"	02 51		01 15 E	+	4 frames	4 x Int
68.TN	"	"	"	02 55			"	"	"
	Flat Field	while moving telescope		03 02	03:32	Signal strength changed with HrL		Tungsten A=1/16	1800
	Long DARK	started		03 50	05:51				7200

Spectr. Temp
Focus
Spectr. Temp

Exp. Mtr. A/B	
185/14	
82/6	
250/18	
80/12	
31x31	50
450/30	
8/6	
31x31	
47x47	
1390/50	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum 77.7/.88

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	~~P.H.~~ BOFFOR	Program	Remarks	Quality
	180	185 / 14	OK	V= 7.73	G8 III			BS		1A	std vel	TRACKING KEPT TO ABSOLUTE MIN. (ONLY R.A. TRAIL).	
	400	82 / 10	OK					"		1B			
	1800	250 / 18	OK	V= 7.73	G8 III			BS		1B	std vel	[redacted] VIGOROUSLY TRACKED (GUIDED) FOR DURATION OF EXP.	
[illegible]	400	80 / 12						"		1B			
[illegible]	4x1d	31 x 31	SOSO			(Image Aquisition view)					seeing test	Slightly gusty	
[illegible]	[illegible] 1800	750 30	OK	V= 7.1	G9 V	PCS	1800/52°	BS	5000 Å	1A	Chiller = -1.5° Asin Sp-Kit	as high as 600 counts/sec	
A [illegible]	400	85 / 10											
[illegible]	4x1d	31 x 31	OK	"	"						seeing test		
"	"	47 x 47	"	"	"						Astigmatism	test, Out of Focus switch to the Right	
[illegible]	1800	1390 / 50					1800/52	BS	5000 Å	1B			
	720						"	"	"	1A			

17 19

Wed-Thurs

Date June 1-2/88 Observers Tn-Nsr

Emulsion Batches:

Pl	Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	E.	Exp. Min.	Sec.
	#1016	Flat (while opening & setting on 1st star)				20 5625			Tung A=1/16	1200	160	75
		1st Comp (Long)			21 0007			+69°	Fe-A Clear	600	80	16
	69.TN	BS 5299	1988.5 14 07.5	+43 55	21 18		00 20E	+44°	4 Frung	x4 Int		
	70.TN	"	"	"					4 Frung	x4 Int		
		Lone Flat	(while closing up)				0 0	platform	Tung A=1/16 ~~Clear~~	3600	100	80
		~~Comp~~ HD 144287	16 000	+25 30	22 41	23 11		Comp 1st +25 25	Fe-A Clear	1800 400	30	15
	71.TN	HD 144287	"	"	2236	"	0100 E	"	4 Frung	Int x4		
		"	"	"	23 1238	23 4240		"				
		Comp @ end	"	"						400		
		~~HD 149162~~	~~16 27.9~~	~~+3 28~~				+		1800	40	16
		HD 140913	1988.5 15 44.7	+28 30	00 03	01 03	01 45 W	+28 43		3600	80	16
		Comp							Fe A Clear	400	100	13
		HD 171232	1988.5 18 32.2	+25 29	01 1340	02 13	0008 W	+25 38	"	3600	170	15
		HD 195987	1988 20 29.4	+41 32	02 24	02 54	01 09 E	+42 02	"	1800	230	9
		LAST FLAT	(while closing)		03 04				Tung A=1/16	1800	160	75

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. +67°F/70%. Transparency Conditions . Cloudy - Clearing fast.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +62°C/70%.

Comparison Type/Filter	Comparison Ex	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	Buffer ~~P.H.~~	Program	Remarks	Quality
Tung A=1/16	200	1600	75				PCS	1800/52°	BS	5000 Å	IA			
Fe.H Clear	600	82	16								IA			
6 Tungs	~~X4~~ Int			poor	V= 5.27	M1A-5						Seeing Test	Gusty NW wind sl clouds Image Aquisit'n View	
4 Tungs	~~X4~~ Int			poor	"	"						Astigmatism test	" " "	
Tung A=1/16 ~~Clear~~	360	1600	80								IA			
Fe-A Clear	~~300~~ 400	~~30~~ ~~70~~	~~08~~ ~~10~~	poor	V= 7.07	G8V					IA	Asm Sp-KK	WRITTEN	
4 Tungs	Int 4x			poor	"	"						Seeing test	↓	T1 FWHM
				"	"	"					IA	Asm Sp-KK	Cont of 1st exp	
	400										IB		while setting	
	1800	40	10	~~very poor~~	V= 9.1	dKO					IA		Too uK (discontinued)	
	500	80	10	~~very poor~~	8.7	G0V					IA	std vel		
Fe.H Clear	100	100	13								IB			
"	3600	170	15	very poor	V 7.7	G8III					IA	std vel	[Comp (400 sec) Between]	
"	1800	230	9	"	V 7.1	G9V					IB	Asm Sp-KK	Comp @ end 400 sec	
Tung A=1/16	1800	1600	75								IA			
													OVER →	

21 #2

Date June 1/2/88 Observers Tk

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
Fm 0000 72.TN	HD195987	1988 20 39.4	+41 32	02 56		01 00 E	+42 02	4 filters	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality (FWHM)
										160 ± 50 gusty winds	
4×Int	poor	7.1	G9V						Seeing Test	Image Hyperbolic view	6".2

#1 Fri-Sat PCS work

Date Jun. 3-4. 1988 Observers Nsr.-Tn

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp / Focus / Spectr. Temp Exp. Mtr. A	B
1034	2nd Long Flat	(During	daytime)		18 56	0 0	platform	Tungsten A=	4 hrs		
not written I guess.	Long Comp			19 55	20 05	"	"	Fe A Clear	600	125	15
73.Tn	BS 4945	13h 01m 22s	+45° 48′		~~19 5~~	≈ 0 0		4 frames	4x	31	31
74.Tn	BS 4945	"	"					"	4x	47	47
35	COMPARISON	10h 57m.9	+36° 38′			~~3 0 0~~		Fe A Clear	400		
36	HD 95735	10h 57m.9	+36° 38′	20 54 16	21 24 16	02 55W			1800	35	18
37	COMPARISON	"	"	21 25 14	21 31 55			Fe A Clear	400	80	18
S8001038NT3	HD 134439	15h 09m 03s	-16° 15′	21 32 28	22 32	00 05E			3600	32	5
39	Comp			22 33				Fe A Clear	400	88	10
40	HD 132737	14 59.4 (1988.5)	+27 12	22 43	23 13	0048W			1800	260	15
41	Comp							Fe A Clear	400		
75.TN	HD 144287	16 00.0	+25 30	23 19		00 13E		4 frames	x4		
42	"	"	"	23 22	23 52	00 20W			1800	550	20
76.TN	"	"	"	23 55				4 frames	x4	39	39
43	Comp	"	"	23 56					400	100	6

Spectr. Temp. ..... Dome Temp./Hum. +15°C / 68% Transparency Conditions ..Clearing from NNE

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

24

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion (Wavelength)	Buffer P.H.	Program	Remarks	Quality
Trans. A-Clear	4 hrs					BC	1800/52°	BS	5000 Å			written	
Fe A Clear	600	125 / 15								IB			
A Trans	Ac	31x31	good									SEEING TEST	5".4
h	Ax	47x47	good									ASTIGMATISM TEST	
Fe A Clear	400									IB.			
	1800	350/18	GOOD	V= 7.6	Mb					IA	Asm Sp-Kt	LIGHT INTERMIT. CLOUDS AT BEGINNING OF EXP.	
Fe A Clear	400	80/8								IB			
	3600	32/5	SO SO	V= 9.02	KO VI					IA	Asm Sp-Kt		
Fe A Clear	400	88/10								IB			
	1800	250/15	OK	V= 8.0	KO III					IA	Std UCl	Some cloud	
Fe A Clear	400									IB			
A Trans	x4		OK	V= 7.07	G8 V						Seeing test		4".8
	1800	550/20	"	7.1	G8 V					IA			
A Trans	X4	39X39				Note	Fiber Hand View				seeing test		3".0
	400	100/6								IB			

25 Pg #2 PCS - WORK

FRI. - SAT.

Date JUNE 3-4/88. Observers TN/NSR

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
44	HD 149287	16h 00m.0	+25° 30'	00:04	00:34	01 05 W	+25 26		1800	480/16
45	COMPARISON	"	"	00:38	00:45			FeA CLEAR	400	85/7
46	HD 171232	1988.5 18h 32m.2	1988.5 +25° 29'	00:47:45	01:17				1800	250/12
47	COMPARISON	"	"	01:18	01:25			FeA CLEAR	400	80/7
48	HD 171232	1988.5 18h 32m.2	1988.5 +25° 29'	01:27	01:57				1800	300/12
49	COMPARISON	"	"	01:58	02:05			FeA CLEAR	400	92/7
1050	HD 195987	1900 20h 29m.4	1900 +41° 32'	02:07	02:37				1800	300/17
SP001051.MT3	COMPARISON	"	"	02:41	02:47			FeA CLEAR	400	80/7
Fm0000TTN	HD 195987	"	"	02:46		E				31x31

PC hung up at end on "Clear Buffer" prompt.
(Last Command noted was "B" (Remnant of "CB"))

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +10°C/80%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	BGF-FAR ~~P.H.~~	Program	Remarks	Quality
	1800	480/16	FAIR TO GOOD.	V= 7.07	G8 V	PCS	1800/52°	BS	5000 Å	1B			
FeA CLEAR	400	85/7								1B			
	1800	250/12	OK	V= 7.7	G8 III	"	"	"	"	1A	std vel	Chiller T=-30°C	
FeA CLEAR	400	80/7								1B			
	1800	300/12	OK	V= 7.7	G8 III	"	"	"	"	1A	STD. VEL.		
FeA CLEAR	400	92/7											
	1800	300/17	FAIR TO GOOD	V= 7.09	G9 V	"	"	"	"	1A			
FeA CLEAR	400	80/7		"						1B			
		31 x 31		"	"	Image	Agn view				seeing test		5.0"

Wed-Thurs

Date JUNE 8-9 1988 Observers J.m./Nss

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
SP001055	Long Flat 2hrs					0 0	platform				
1056	Long Comp				19 42 56	"	"	Fe A Clear	600	140	19
FM000078TN	HD 123782 13 Boo	1988.5 14h 07m 51.3s	1988.5 +49° 30' 49"			≈ 0 30 E	+49 41		x4	31x31	
FM000079TN	"	"	"						x4	47x47	
FM000080TN	"	"	"						x4	39x39?	
1057	COMPARISON	"	"	20:57	21:09			F&A CLEAR	400	115	11
1058	HD 123782 13 Boo	1988.5 14h 07m 51.3s	1988.5 +49° 30' 49"	21:07	21:37	00 23 W			1800	340	89
1059	Comparison (95735)	"	"	21:38	21:45			Fe A Clear	400	125	13
1060	HD 95735	10h 57.9m 1900	+36° 38'	21:47	22:17				1800	135	13
1061	COMPARISON	"	"	22:18	22:24			Fe A Clear	400	115	15
1062	HD 124752	14h 10.3m 1900	+68° 03'	22:29	23 29	02 11 W	+67 49		3600	96	9
~~FM000081TN~~	Comp (not written I guess)							Fe A clear	300	100	12
TM000081TN	HD 144287	16 00.0 1900	+25 30	23 40		W	+		x4	31x31	
SP 1063	"	"	"	23 41 42	00:41:45	01 33 W	"		3600	350	25
1064	COMPARISON	"	"	00:44	00:49			F&A CLEAR	300	120	14

Spectr. Temp. ..... Dome Temp./Hum. +10°C / 62% Transparency Conditions Clearing

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion Wavelength	P.H. Buffer	Program	Remarks	Quality
						PCS	1800/52°	BS	5000Å	IA		written	
FeA Clear	600	140/19								IB		written	
	x4	31x31	SOSO	V= 5.25	M2 III ab						sl gusty	SEEING TEST	6".0
	x4	47x47		"	"						Out of focus switch to the Right	ASTIGMATISM TEST	
	x4	39x39?	SOSO	"	"							SEEING TEST FIBER HO VIEW	4".5
FeA CLEAR	400	115/11								IB			
	1800	340/89	poor	V =5.25	M2 III ab					IA	Std Vel	1st part thru cloud -15.61	
FeA Clear	400	125/13								IB			
	1800	135/13		V= 7.60	~~[illegible]~~ Mb					IA.	Asm. Sp	-24.92	
FeA Clear	400	115/15								IB			
	3600	96/9	poor	8.2	K0					IA	Asm Sp	-10.20	
FeA clear	300	100/12								IB			
	x4	31x31	SOSO	7.1	C8V						Seeing test	Image Agaisita ~~[illegible]~~	
	3600	350/25	"	"	"					IA	Asm Sp	-9.26	
FeA CLEAR	300	120/14								IB			

Date JUNE 8 & 9/88 Observers TN/NSR

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
SP001065	HD 147379	16h 16.6m 1900	+67° 28'	00:51	01 51	02 30 W	+67 27		3600	80	7
1066	COMPARISON	"	"	01:52	01:57			Fe A Clear	300	120	12
67	HD 171232	18h 32.2m 1988.5	25° 29' 1988.5	02:00	02:40	W	+25 38		3600	300	18
1068	COMPARISON	"	"	02:41	02:46			FeA CLEAR	300	120	14
FM000082.TN	HD 195987	20h 29.4m 1900	+41° 32' 1900	02 45		00 50 E					
1069	HD 195987	20h 29.4m	+41° 32'	02:49	03:29		+42 01		2400	550	39
1070NTA	COMPARISON	"	"	03:31	03:36			FeA CLEAR	300	105	10
SP 001071NTA	Long Flat	(On timer)		23:40	25:40	0 0	platform	Tung B-1/16			

Spectr. Temp

Focus

Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions . Some Cloud .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum 17°C / .....

KK Seeing tests Reduced e on printer.

30

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion WAVELENGTH	P.H.	Program	Remarks	Quality
	3600	80 / 7	FAIR TO POOR	V= 8.63	MO V	PCS	1800 / 52°	BS	5000 Å	iA	Asm Sp	-5.18	
Fe A Clear	300	120 / 12				"	"	"	"	iB			
	3600	300 / 18	FAIR TO GOOD	V =7.7	G8 III	"	"	"	"	iA	STD. VGL.	as high as 550 7.94	5.6
FeA CLEAR	300	120 / 14				"	"	"	"	iB			
			OK	V= 7.09	G9 V	"	"	"	"		SEEING TEST	no wind 15.00	On Base
	2400	550 / 34	GOOD	V= 7.09	G9 V	"	"	"	"	iA.	Asm Sp KK	Counts @ high as 750 14.87	
FeA CLEAR Tung A-1/16	300	105 / 10				"	"	"	"	iB			
						"	"	"	"	IA			

Date JUNE 9 & 10 / 88 Observers NST - TN

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A/B
SP001072.NT5	Long Flat					0 0	platform	Tung A=1/16	7200	350/20
73.NT5	Long Fe A Comp					"	"	Fe A Clear	1200	120/10
FM000083.TN (13 Boo)	HD 123782	1988.5 14h 07m 51.2s	1988.5 +49° 30' 41"	20:30		00 40E		4 Frame	4x	
SP00174.NT5	COMPARISON	16h 3m.5	+25° 25'	20:38	20:43			Fe A CLEAR	300	116/14
~~FM 084.NT5~~	HD 144287	16 00.0	+25 30	20:44	21:17	01 50 E			1800	400/30
SP001076.NT5	COMPARISON	"	"	21:18	21:24			Fe A CLEAR	400	
1077.NT5	HD 112956	12h 55m.2	+69° 19'	21:30	22:30	02 32 W	+68 38		3600	400/30
1078	COMPARISON	"	"	22:32	22:38			Fe A CLEAR	400	120/12
1079	HD 124752	14h 10m.3	+68 03'	22:41	23 03	01 51 W	+67 31		1350 ~~3600~~	220/15
1080.NT5	Long Comp	~~(while unrewinding)~~		23 21/23		0 0	~~+~~10°.		600	
1081.NT5	Flat			23 34		0 0	platform		3600	
FM000084.TN	HD 171232	1988.5 18h 32m.2	1988.5 25° 29'	00:58				4 frames	x4	
1082	COMPARISON	"	"	00:54	01:01				400	
83	HD 171232	1988.5 18h 32m.2	1988.5 25° 29'	01:03	01 50	0 15 W				260/18
84	Comp								400	140/11
85	LONG DARK					0 0	Platform		7200	

Spectr. Temp. ..... Dome Temp./Hum. +10°C/60% Transparency Conditions Clearing ... Cloudy again

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +6°C/85%

Note - guiding with image sl below slot, gives much higher count rate then if centered on slot. I noticed this last night too. Dec independent too

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	~~Emulsion~~ Wavelength	P.H. Buffer	Program	Remarks	Quality
Hg 4-1/16	7208	2500/200				PCS	1800/52°	BS	5000 Å				
He A Clear	1200	120/10											
Hg	4x		OK	V= 5.25	M2 III ab	Image	Aquisition mode				Seeing Test	SKY STILL QUITE BRIGHT. Slightly gusty	
FeA Clear	300	116/14				PCS	1800/52	BS	5000 Å	iB			
	1800	400/30	OK			"	"	"	"	iA	Asm Sp-kk	Sky sl bright ≈ 10 cnts above dark at 1st.	
FeA Clear	900					"	"	"	"	iB			
	3600	400/30	OK	V= 8.2	G6	"	"	"	"	iA	Asm Sp kk	A sky high as 650 cnts Reversed - some cloud	
FeA Clear	900	120/12				"	"	"	"	iB			
	1350 3600	220/15	FAIR	V= 8.2	K0	"	"	"	"	iA	Asm-Sp-kk	Still Reversed Halted more cloud	
	600					"	"	"	"	iB			
	3600					"	"	"	"	iB		Chiller Bath T = -28°C	
Hg	14		POOR	V= 7.7	G8 III						Seeing Test	EXTENSIVE CLOUD COVER. (no wind)	
	900	[illegible]								iB			
		260/18	POOR	V= 7.7	G8 III	"	"	"	"	iA	Std_vel	EXTENSIVE CLOUD COVER Halted @ 150	
	400	140/11				"	"	"	"	iB			
	7208									IA			

83

Fri - Sat

Date June 10-11/88 Observers Mki.-Tn

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp / Focus / Spectr. Temp Exp. Mtr. A	B
86	Long Flat										
87											
88	Comp Long										
1089	Sky @ Dusk										
Fm 85.TN	HD 122693	14 02.4	198815 124 37				+24 48	# frames	x4		
	Comp						"		300		
	HD 122693	198815 14 02.4	+24 37	21 00 52	21 21		"		1200	250/75	
	Comp								400		
	AW UMa B	1987 11 29.4	+30 02	21 47	22 15	03 50W	Halted		3600	90/9	
	Comp	(Supperimposed on previous stellar spectra)							400		
	FO VIR	1988 13 29.4	1988 +01 08	22 32 34	22 52	02 20W			1200	130/50	
	Comp								400	83/10	
	HD 141232	18 32.2	+25 29	23 05 30	23 35 32	01 53E			1800	250/20	
	Comp				23 43				400		

Spectr. Temp. ..... Dome Temp./Hum 13°C/60% Transparency Conditions OK – cloudy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion ~~5200Å~~ wavelength	P.H. Buffer	Program	Remarks	Quality
						PCS	1800/53°	BS	5200Å				
4 Fines	x4		OK	V= 8.2	F8V						Seeing Test	Image Again mode	
	300		"	"	"								
	1200	250/25	"	"	"					IA	std Vel	NE of Pair, sep ≈ 10'	
	400									IB			
	360	90/9	OK	V= 9						IA	DK:	some cloud faint comp	
	400									IB			
	1200	300/50	OK	V 6.7	K7V					IA		cloud	
	400	83/10	"							IB			
	1800	250/20	"	V= 7.7	G8III					IA		cloud (as high as 75°)	
	400									IB			

Pg 2

Date . June 10-11. 1888 . . . Observers Mki.-Tc. . . . . .

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
99	BM CASS			23 51 40	00 52	E	+		3600
1100	Comp (Labeled BM Cass)								
1	BM CASS			01 01 32	02 01	05 45 E	+64 10	+	3600
3	Comp							F o A	
3	HD171232	18 32.2	+25 29	02 21 31	02 47	01 17 W			1480 ~~1500~~
4	Comp (Long)								600
5	Flat (while closing)								3600

Spectr. Temp.
Focus . . . . . .
Spectr. Temp.

Exp. Mtr. A	B	Se
100	15	Sc
200	20	ch
250	15	ch
250	250	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ... Cloudy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +11°C / 60% Chiller T = -3.0°C

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	360	100	15	5050			PCS	1800/53	BS	5200Å	IA			
											IB			
	360	200	20	ok	V= 9						IA		Cont of 1st Exp.	
FoA											IB			
	1485 ~~1500~~	250	15	ok	✓ 7.7	68mm					IA	Std Vel	cloud Halted	
	600										IB			
	3100	2750/250									IB			

Page #1

Emulsion Batches: .....

Date JUNE 13TH-14TH/88 Observers ...TN/NSR.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1106	Long Flat					00 00	Platform	Tungsten A=1/16	7200
7	COMPARISON			20 04 ~~19~~:18	20 24 ~~19~~:28	00 00 ~~19~~:28	PLATFORM	FeNe 1/8 Aper.	1200 ~~1200~~
8	Sky Spect			19 28	19 48	"	"		
FM0000 86TN	HD 123782 13800	1988.5 14 07.9	1988.5 +49 31	20 36		00 20E	+49 40	4 Frames	X4
9	HD 123782	"	"	20:49	20 59	00 05W	"		600
10	COMPARISON	"	"	21:01	21:04	"	"	FeNe 1/8	200
11	HD 95735	$10^h 57^m.9$	+36° 38′	21 0636	21:37	03 47W	+36 12		1800
12	COMPARISON	"	"	21:38	21:41			FeNe 1/8	200
13	AW UMa B	1987 $11^h 29^m.4$	1987 +30° 02′	21:40	22 40	4 24 W	+30 12		3600
	COMPARISON	"	"	~~22~~:44	22:49		"	FeNe A=1/8	300
FM00087.TN	HD 140913	1988.5 $15^h 44^m.7$	1988.5 +28° 30′	22:50		0 29W			
15	HD 140913	"	"	22:52	23:22	0051W			1800
	COMPARISON	"	"	23:23	23:26			FeNe A=1/8	200
	NGC 6543 (PN)	1988.5 $17^h 58^m.8$	1988.5 +66° 38′	23:32	00 32	0014E	+66 48		3600
	COMPARISON			0034					200

Spectr. Temp. Focus..... Spectr. Temp.

Exp. Mir. A/B	Sec
480/20	
Prev. Plate 31x31	
600/20	
450/23	
1100/45	
450/18	
165/11	
450/21	
700/28	
450/14	
35/6	

Spectr. Temp. ..... Dome Temp./Hum. +25°C / 40% Transparency Conditions Hazy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

note - * Off ND Filter Before Comp Barrel

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. Δ / β	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	~~Emulsion~~ λ	BUFFER ~~P.H.~~	Program	Remarks	Quality
Tung Δ: 1/16	1200					PCS	831/39.5°	BS	Hα	iB			
FeNe 1/8 Aper	1200	480/20								iB			
										IA		In Reverse orded (written)	
AFrames	X4	Pixel 31x31	OK	V= 5.25	m2 Mb						seeing test	Image Aquisitn View asymmetrical	4.8
	600	800/20	"	"	"	"	"	"	"	iA	Std Vel	DELIBERATELY KEPT OFF MAX. COUNT POSITION (STAR TOO BRIGHT).	
FeNe 1/8	200	450/23	"							iB			
	1800	1100/45	"	V= 7.60	Mb	"	"	"	"	iA	Asm Sp KK	as high @ 2900 cnts	
FeNe 1/8	200	450/18								iB			
	3600	165/11	FAIR TO GOOD	V= 9		"	"	"	"	iA	mki pgm		
FeNe 1/8	300	450/21								iB			
			GOOD	V= 8.2	GO V	"					SEEING TEST		4.4
	1800	700/28	GOOD	"	"	"	"	"	"	iA	STD. VEL.	Dome T = +22°C Chiller T = -2.7°C	
FeNe 1/8	200	450/24								iB			
	3600	35/6	GOOD	V= 8.7	Em	"	"	"	"	iA		middle ≈ centered	
	200					"	"	"	"	IB			

page #2 cont

Date Sept 13-14/88 Observers Dr. T.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
#1	BM CASS	00 53.9	+64 00.36	00 42 37	01:12 40	06 20 E	64 08 +64 00		1800
	COMPARISON	"	"	01:14	01:17			FeNe A=1/8	200
#2	BM CASS	"	"	01 ~~16~~ 21	01:51	E	+64 00		1800
	COMPARISON	"	"	01:54	01:57			FeNe A=1/8	200
#3	BM CASS	"	"	01:58	02:28	05 09 E	+64 00		1800
	COMPARISON	"	"	02:30	02:33	"	"	FeNe A=1/8	200
#4	BM CASS	"	"	02:36	03:06	04 31 E	+64 01		1800
	COMPARISON	"	"	03:08	03:11	"	"	FeNe A=1/8	200
FM000088.TN	BM CASS	"	"	03:11		04 26 E	"	4 frame	4x
#5	BM CASS #5	"	"	03:14	03 44	03 53 E	+64 01		1800
	COMPARISON	(while closing)		03:45					200
	Long Flat					0 0	platform		7200

Spectr. Temp
Focus
Spectr. Temp

Exp. Mtr. A	Exp. Mtr. B
100/6	
330/18	
120/6	
370/21	
140/11	
870/22	
180/12	
380/22	
31/31	
180/12	
380/25	
1400/75	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .. Still. Hazy.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +20°C / 60%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp. Hα	Inst.	Grating/ Tilt	Slit	~~Emulsion~~ Wavelength Hα	P.H. Buffer	Program	Remarks	Quality
	1800	100 / 6	OK	≈ 9	Em	PCS	831/39.5°	BS	Hα	IA	Mki pgm		
FeNe A: 1/8	200	330 / 18	"	"		"	"	"	"	iB			
	1800	120 / 6	OK	"		"	"	"	"	IB	Mki pgm		
FeNe A: 1/8	200	370 / 21	"	"		"	"	"	"	iA			
	1800	140 / 11	"	"		"	"	"	"	iA.			
FeNe A: 1/8	200	370 / 22	"			"	"	"	"	iB			
	1800	180 / 12	"	"		"	"	"	"	iB			
FeNe A: 1/8	200	380 / 22	"			"	"	"	"	iB			
4 Frames	4x	31 x 31	"	"		"	Image Aquisition				SEEING TEST	Sl windy	
	1800	180 / 12	~~5050~~	"		"	"	"	"	iA		cnts as high as 300	
	200	380 / 25				"	"	"	"	iB			
	1200	400 / 75				"	"	"	"	IB			

Emulsion Batches: .....

Date JUNE 14TH-15TH /88 Observers TN/NSR

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1131	LONG FLAT			15:25	18:25	00 00	PLATFORM	TUNG A = 1/16	10800
32	COMPARISON	1988.5 14h 07.9m	1988.5 49° 40'	20:27	20:32			FeNe A = 1/8	300
FM000089.TN	(13 BOO) HD 123782	1988.5 14h 07.9m	1988.5 49° 31'	20:30		00 21E		4 FRAMES	×4
33	"	"	"	20:38	20:48	00 03E	49° 33'		600
34	COMPARISON	"	"	20:49	20:52			FeNe A = 1/8	200
35	HD 95735	1900 10h 57.9m	1900 +36° 38'	20:56	21:16	03 30W	+36 05		1200
36	COMPARISON	"	"	21:17	21:20			FeNe A = 1/8	200
37	AW UMa B	1987 11h 29.4m	1987 +30° 02'	21:22	21:22	04 09W	+30 05		3600
38	COMPARISON	"	"	22:23	22:26			FeNe A = 1/8	200
1139	A 1874 A	1900 16h 55.1m	1900 +47° 31'	22:31	23 01	00 39E	+47 25		1800
40	Comparison	"	"	2305					
41	A 1874 B	"	"	23:28	00:18				3600
42	COMPARISON	"	"	00:19	00:22				200
FM000090.TN	A 1874 C	"	"			00 45W		4 FRAMES	×4
43	A 1874 C	"	"	00:27	00:57				1800

Spectr. Temp
Focus .....
Spectr. Temp

Exp. Mtr. A/B	
410/25	
PIXEL #5 31×31	
900/145	
910/25	
1050/50	
910/31	
175/13	
910/26	
850/38	
910/27	
410/5	
380/24	
PIXEL #5 31×31	
920/39	

Spectr. Temp. ..... Dome Temp./Hum. +27°C/39% Transparency Conditions . Hazy.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

note - on B1874, I did many Hα Hs & IRs

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A/B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	~~P.H.~~ BUFFER	Program	Remarks	Quality
Tung A: 1/16	10800					PCS	831/39.5°	BS	Hα	iA			
FeNe A: 1/3	300	410/25				"	"	"	"	iB			
4 Frames	x4	Pixel #'s 31×31	GOOD	V= 5.25	M2 IIIab	Image Acquisition View					SEEING TEST		4".3
	600	300/145	GOOD	"	"	"	"	"	"	iA	STD. VAL.	DELIBERATELY KEPT OFF MAX. COUNT POSITION. (OWING TO STAR'S BRIGHTNESS)	
FeNe A: 1/8	200	410/25								iB			
	1200	050/50	GOOD	V= 7.60	M6	"	"	"	"	iA	Asm Sp-KK		
FeNe A: 1/8	200	420/31				"	"	"	"	iB			
	3600	175/13	GOOD	V= 9		"	"	"	"	iA	MKi pgm		
FeNe A: 1/8	200	410/26				"	"	"	"	iB			
	1800	350/38	GOOD	V= 8.0	K8	"	"	"	"	iA	Asm Sp-KK	TRIPLE SYSTEM. STAR WITH COMPONENT. B (≈ 12TH MAG.) (CLEARLY DISCERNIBLE) WAS STUDIED FIRST. STAR = A.	
		400/27	Fine			"	"	"	"	IB	"	Attempt at fnt comp	blank
	300	40/5	"	≈12		"	"	"	"	IA	"	Sudden "noise" Spike 1st noticed @ 2350. near Hα	
	200	380/24								iB			
4 Frames	x4	Pixel #'s 31×31		V≈ 8.0		Guiding View					SEEING TEST		2".4
	1800	020/39	GOOD	"		"	"	"	"	iA			

Emulsion Batches:

Date JUNE 14TH-15TH/88 Observers TH/NSR

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A/B
1144	COMPARISON (CH CYG)	16h 55m.1	+47° 31'	00:59	01:02			FeNe A=1/8	200	/
45	HD 182917	19h 21m.9	+50° 02'	01:04	01:34	00 34 E	+50° 15'		1800	920/45
46	COMPARISON (CH CYG)	"	"	01:36	01:39	0030 E	+50° 15'	FeNe A=1/8	200	405/25
47	HD 182917	"	"	01:41	02:11	00 05W			1800	780/35
48	COMPARISON	"	"	02:12	02:16			FeNe A=1/8	200	385/32
49	BM CASS #1	1986.3 05h 53m.9	1986.3 64° 01'	02 23	02:53	04 40 E	+64° 02'		1800	170/15
50	COMPARISON	"	"	02:56	02:59	04 37 E	"	FeNe A=1/8	200	380/36
51	BM CASS #2	"	"	03:02	03:32	04 04 E	+64° 02'		1800	170/17
1152NT7	COMPARISON	"	"	03:33		04 01 E	"	FeNe A=1/8	200	380/31
1153NT7	Long Flat 2hrs	(while closing sentinel)								
1154NT8	Long Dark	written @ 0744 PM June 15/88.								

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions . SOMEWHAT HAZY .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ...../65%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	~~P.H.~~ BUFFER	Program	Remarks	Quality
FeNe A: 1/8	200	/				PCS	831/39.5°	BS	Hα	iB			
	1800	920/45	GOOD	V_{max}=7.4 V_{min}=9.1	Mb	"	"	"	"	iA	Obs pgm		
FeNe A: 1/8	200	705/25				"	"	"	"	iB			
	1800	780/35	GOOD	V_{max}=7.4 V_{min}=9.1	Mb	"	"	"	"	iA			
FeNe A: 1/8	200	385/32				"	"	"	"	iB			
	1800	170/15	GOOD	V≈ 9	Em	"	"	"	"	iA	mki pgm		
FeNe A: 1/8	200	380/36								iB			
	1800	170/17	GOOD	V≈ 9	Em	"	"	"	"	iA			
FeNe A: 1/8	200	380/31				"	"	"	"	iB			

Emulsion Batches:

Date JUNE 15TH-16TH/88 Observers TN/NSR

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mr.
1155.NT8	Long Flat					0 0	platform			
1156.NT8	DARK			22 09	00 09	0 0	"			
1157.NT8	COMPARISON	1988.5 $18^h\ 32^m.2$	1988.5 $25°\ 29'$	00:18	00:23			FeNe A = 1/8	300	410/35
FM000091.TN	HD 171232	"	"	00:25		$00^h\ 40'$E	$25°\ 30'$	4 FRAMES	×4	Pixel 39×39
1158.NT8	HD 171232	"	"	00:28	00:58	$00^h\ 10'$E	$25°\ 30'$		1800	190/17
1159.NT8	COMPARISON	"	"	01:11	01:15			FeNe A = 1/8	200	390/35

Spectr. Temp. ..... Dome Temp./Hum. +20°C / 80% Transparency Conditions .. Clearing ~ gusty .....

Focus ..... Chiller Temp = -1.3°C 46

Spectr. Temp. ..... Dome Temp./Hum. +18°C / 80% * Note Much cooler air coming in fast. ∴ Worst possible seeing

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	~~P.H.~~ BOFFAR	Program	Remarks	Quality
						PCS	831/39.5°	BS	H∝				
						"	"	"	"				
FeNe A: 1/8	300	410/35				"	"	"	"	iB			
4 FRAMES	×4	Pixel #'s 39×39	VERY POOR	V= 7.7	G8 III	Guiding View					SEEING * TEST	SEEING QUITE POOR, GUSTY & CLOUDY	
	1800	190/17	POOR	"	"	"	"	"	"	iA	STD. VEL.		
FeNe A: 1/8	200	390/35				"	"	"	"	iB		MORE Cloud	

47 Thurs - Fri Pg #1

Date JUNE 16TH-17TH/88 Observers T.N./N.S.R.

Emulsion Batches: .... +0.6 ND

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1160	LONG FLAT			≈18:30	≈19:30	00h 00'	PLATFORM	TUNG. A = 1/16	3600
	2ND FLAT			20:03	21:03	00h 00'	PLATFORM	TUNG. A = 1/16	3600
FM000092.TN 62	(13 Boo) HD 123782	1988.5 14h 07.9	1988.5 +49° 31'	21:05				4 FRAMES	×4
	1ST COMPARISON	"	"	21:07	21:11	00h 30' W	49° 32'	FeNe A = 1/8	200
	(13 Boo) HD 123782	"	"	21:12	21:22				613
	2ND COMPARISON	"	"	21:24	21:27			FeNe A = 1/8	200
66	(RX Boo) HD 126327 (1ST)	1900 14h 19m.7	1900 +26° 11'	21:29	21:49	00h 49' W	25° 47'		1200
	COMPARISON	"	"	21:50	21:53	00h 51' W	"		200
66	(RX Boo) HD 126327 (2ND)	"	"	21:56	22:19				1200
	Comp	"	"	22:20	22:24			FeNe A = 1/8	200
	(CH CYG) #1 HD 182917	19h 21m.9	+50° 02'	22:27	22:57	03h 00 E	50° 16'		1800
	COMPARISON	"	"	22:58	23:01	02h 57 E	"	FeNe A = 1/8	200
	(CH CYG) #2 HD 182917	"	"	23:03	23 33				1800
	Comp	"	"					FeNe A = 1/8	200
	CH Cyg #3	"	"	23 39					1800

Spectr. Temp. ..... Dome Temp./Hum. 40.°F/68% Transparency Conditions INTERMIT. CLOUD

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

48

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A/B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	BUFFER ~~P.H.~~	Program	Remarks	Quality
TUNG. A: 1/16	3600					PCS	831/39.5°	BS	Hα	iA			
TUNG. A: 1/16	3600	1530/147				"	"	"	"	iB			
4 FRAMES	×4	Pixel #'s 39×39	POOR TO OK	V= 5.25	M2 IIIab	GUIDING VIEW					SEEING TEST	SCATTERED CLOUD, BREEZY	
FeNe A: 1/8	200	380/32	"			PCS	831/39.5°	BS	Hα	iB			
	613	810/38	"	V= 5.25	M2 IIIab	"	"	"	"	iA	std vel	COUNTS AS HIGH AS 1900 WHEN STAR OUT OF CLOUDS.	
FeNe A: 1/8	200	390/30								iB			
	1200	700/50	"	V_{max}=7.0 V_{min}=9.1	M8	"	"	"	"	iA	CH Cyg Std	STAR'S APPARENT BRIGHTNESS INDICATED IT MUST BE NEAR MAX. V (Counts as high as 900)	
	200	415/33				"	"	"	"	iB			
	1200	460/29	POOR	"	"	"	"	"	"	iA	CH Cyg Std	THIS WAS A 1200 SEC. CONTINUATION OF THE ABOVE SPECTRA IN BUFFER	iA
FeNe A: 1/8	200	390/35				"	"	"	"	iB			
	1800	350/35	FAIR	V_{max}=7.4 V_{min}=9.1	Mb	"	"	"	"	iA	Obs pgm	Near beginning, Hα looked "SPLIT", like BINCASS Hα	
FeNe A: 1/8	200	410/35				"	"	"	"	iB			
	1800	330/26	FAIR →POOR	"	"	"	"	"	"	iB		Counts to 480 at times	
FeNe A: 1/8	200					"	"	"	"	iB			
	1800		POOR	"	"	"	"	"	"	iA			

PG. #2

Date JUN4 16TH-17TH/88 Observers TN/NSR

Emulsion Batches:

.....

.....

.....+0.6 ND

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A/C
	COMPARISON	$19^h\ 21^m.9$	+50° 02′	00:10	00:13			FeNe A = 1/8	200	430/34
	BM CASS #1	$00^h\ 53^m.9$	+64° 00′36″	00:19 ~~00:21~~	00:49	05^h 24′E	64° 02′		1800	90/12
	COMPARISON	"	"	00:51	00:54	05^h 21′E	"	FeNe A = 1/8	200	405/38
	BM CASS #2	"	"	00:57	01:27	04^h 48′E	"		1800	90/13
	COMPARISON	"	"	01:28	01:31	04^h 45′E	"	FeNe A = 1/8	200	390/28
	BM CASS #3	"	"	01:33	02:03	04^h 15′E	"		1800	100/11
	COMPARISON	"	"	02:05	02:08	04^h 10′E	"	FeNe A = 1/8	200	380/30
	BM CASS #4	"	"	02:11	02:41	03^h 37′E	"		1800	95/11
	COMPARISON	"	"	02:44	02:47	03^h 31′E	"	FeNe A = 1/8	200	390/30
	HD194071	1988.5 $20^h\ 22^m.1$	1988.5 +28° 13′	03:00	03:30	00^h 35′W	28° 14′		1800	250/24
FM00000 93.TN	"	"	"	03:32				4 FRAMES	×4	PIXEL #1 39×39
	COMPARISON	"	"	03:34	03:39				300	390/26
1186?	Long Flat			03 41 38		0 0	platform	Tung A = 1/16	7200	

Spectr. Temp. ..... Dome Temp./Hum. 38°F/76% (00:05 E.S.T) Transparency Conditions ....Fine.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

50

+0.6 ND

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A/B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	~~P.H.~~ BUFFER	Program	Remarks	Quality
FeNe A: 1/3	200	430/34				PCS	831/39.5°	BS	HX	iB			
	1800	90/12	POOR	V≈9	Cm	"	"	"	"	iB			
FeNe A: 1/3	200	405/38				"	"	"	"	iA			
	1800	90/13	Poor FAIR	V≈9	Cm	"	"	"	"	iA			
FeNe A: 1/3	200	390/28				"	"	"	"	iB			
	1800	100/11	"	"	"	"	"	"	"	iA			
FeNe A: 1/3	200	380/30				"	"	"	"	iB			
	1800	95/11	FAIR	V≈9	Cm	"	"	"	"	iA			
FeNe A: 1/3	200	390/30				"	"	"	"	iB			
	1800	250/24	FAIR	V=8.13	G8 III	"	"	"	"	iA	STD. VEL.	Counts as high as 470	
FeNe	x4	Pixel #1 39×39	POOR	"	"	Guide	View	"	"		SEEING TEST		
	300	390/26				"	"	"	"	iB			
Tung	7200		+0.6 ND					"	"	iB			

51

Fri - Sat

Date June 17-18/88. Observers MKi-Tn

Emulsion Batches:

+ND: 0.6

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A/B
	~~Long Flat~~									
	Dusk Sky									
1186 ~~AFB~~	MK2 Flat Field	1988.5	1988.5	2035		while setting up		Tung A=1/16	1800	140/110
	1st Comp	18 32.2	+28 30	21 08		E	A=1/16	Comp FeNe	200	125/17
	~~HD 171232~~	2nd comp	"	2120			No ND	Fe A Clear	200	122/38
89°.	HD 171232	18 32.2	+25 30	21 37 39	22 08	02 55 E	+25 29		1800	400/27
	Comp						ND 0.6 in	FeNe A=1/16	200	130/22
	HD 126327	1900 14 19.7	+26 11	22 14 47	22 39	01 45 W			1400	400/130
	Comp							FeNe A=1/16		150/30
	CH Cyg HD 182917	19 21.9	+50 02	22 48 34	23 18	E	+50 16		1800	600/20
	Comp						"	FeNe A=1/16	200	137/17
95°.	HD 171232	1988.5 18 32.2	+25 30	23 36	00 06	E	+25 29		1800	400/38
Tmax 94 TN	"	"	"	00		E	"			
	Comp								200	

Spectr. Temp. ..... Dome Temp./Hum. +17°C / 60% Transparency Conditions ....Fine.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	Buffer P.H.	Program	Remarks	Quality
						PCS	~~1800~~/3955	BS	H+				
							NOT POSSIBLE						
Tung A=1/16	1800	1400/160								IA			
Comp FeNe	200	125/17								IB			
FeA Clear	200	122/38								IA			
	1800	400/27	ok	V= 7.7	G8III					IA	Std Vel	as high as 850 counts	
FeNe A=1/16	200	130/22								IB			
	1400	1100/130	ok	V= 7						IA	CH cyg Std	~~as~~ high as 2900 counts Prob near max mag	
FeNe A=1/16		130/30								IB			
	1800	600/20	Fine	V 8	M6					IA	Obs pgm		
FeNe A=1/16	200	127/17								IB		PS2 CRASH Before Comp	
	1800	400/38	ok	V= 7.7	G8III					IA	Std Vel		
			"	"	"	Guide View					Seeing Test		
	200									IB			

53 #2

Date June 17-18 /88 Observers mki - Th

Emulsion Batches:
N.D. 0.6 ~~[illegible]~~

Plate No.	Object	R.A. ~~1900~~ 1988	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mir.	B	Se
	PU VUL	20 20.7	+21 32	00 23 55	≈ 01 00	01 57 E	+21 33		1800	200	20	0
	Comparison				01 08			~~Fe~~ Ne A=1/16	200			
	BM CASS*	00 53.9	+64 01	01 09	01 21	E	+64 02		~~1800~~ 712	250	17	0
	Comp	"	"	01 22					200			
	BM CASS #1	"	"	01 27	01 57	05 28 E	+64 02		1800	300	20	0
	Comp	"	"									
	BM CASS #2	"	"	02 03	02 34	E			1800	300	20	0
	Comp							~~Fe~~ Ne A=1/16	200			
	HD 171232	1988 18 32.2	1988 +25 30	02 48	03 32	02 30 W	+25 30	~~360~~	~~3600~~ 2600	700	34	0
	COMPARISON								200			
	Long Flat	(on	timer)	03 39					3 hrs	190	140	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .. Fine .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +15°C / 70 % .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	~~Emulsion~~ Buffer	P.H.	Program	Remarks	Quality
	1500	200	20	OK			PCS	~~1800~~/395	BS	Hα	IA	mki pgm		
Fe NE A=1/16	240										IB			
	~~1500~~	250	17	OK	V= 9						IA	Obs-pgm	Halted [Prob* Cont by PU vul]	
	200										IA		(ie PU vul + BMCASS)	
	180	250	20	OK	V= 9						IA	Obs pgm		
											IA			
	180	300	20	OK	V 9						IA	Obs pgm		
Fe NE A=1/16	200										IA			
~~Std~~	~~3600~~	700	34	OK	V= 7.7	G-8 [illegible]					IA	std vel	Almost 2x as fast as before? Counts to 1500	
	200										IA			
	3hrs	1500	140								IA.			

55

Tues-Wed

Date Aug 2-3/88 Observers Tn - KK - Nsr

Emulsion Batches:
IIaO ... IA7 ... MAY 25
2.64, 0.17 IIIa-J-eg. IA7 ... Aug 2 17 hrs for my eyes
8m 72? ! IIaO-e ... IA7 ... July 25

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. & Filter
50282F	Focus Test [Manual	Mode]				3 01 30W	3+47	10 NE Clear	4 min 2 min	9880 9580
~~50282~~				~~22:12~~	~~22:14~~			~~FeNe Clear~~	~~2 min~~	
50282	HD 186791	1988.5 19h 45.7m	1988.5 +10° 35'	22:18	22.2 Tn ~~23~~:54	00 20E	+10 36	FeNe Clear	2 min 2 min	1000 10 400 1093
50283	HD 182640	1900 19h 20.5m	1900 +2° 55'	23:11	01 07	02 12W	+3 06	FeNe CLEAR	3 MIN. 3 min	1585 1575 1589 / 1750 1730
50283T	Spot Calib for	50283,	8687	15 min	D4 17.5V 3900	15V 4300	15V 4810			
50284	(POLARIS) HD 8890	01h 22.6	+88 46	01 25	01 36	E	+89 10	FeNe CLEAR	2 min. 2 min.	974 1% / 9616 / ~~9730~~
50285	"	"	"	01 50	01 57	04 04E	"	"	2 min 2 min	9380
50286	HD 209790	22 00.9	+64 08	02 12	03 45	02 08W	+64 36	"	3 min 3 min	18330 18460

MAY 25
Aug 2 17hrs
f-ng 965

Spectr. Temp. 82°f Dome Temp./Hum. +27°c/80% Transparency Conditions hazy-cloudy 56

Focus 3.84

Spectr. Temp. 78°f Dome Temp./Hum. +24°f/92%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		B Filter											
IC NC Clear	4min 2min	2000 / 580	POOR			BC	1200/50.8	BS	IIaO	1		Diffuser up	Center Sl Red
~~Fe Ne Clear~~	~~2min~~												
FeNe Clear	2min 2min	≈1000 / 0400 / 1043	"	V= 2.72	K3 II	BC	1200/50.8	BS	IIaO	1	Std Vel		
FeNe CLEAR	3 Min 3 min	1585 / 1595 / 1580 / 17500 / 17582 / 5050	POOR→	B= 3.68	F0 IV	BC	1200/50.8	BS	IIIaJ-efg IIIaJ-efg	1	Asm Sp-kk	(S Aql.) Some cloud	weak ✓ ✓
FeNe CLEAR	2min. 2min.	974 / 9646 / 9380	FAIR	2	F	BC	1200/50.8	BS	IIaO-e	1	Asm Sp-kk		✓
"	2min 2min	9380	"	"	"	"	"	"	"	1	"		✓
"	3min 3min	18330 / 18660	OK	4.63	A3m	"	"	"	IIIaJ-efg	1	Asm Sp kk		weak ✓

WED. THURS.
Date AUG. 3-4/88. Observers T.N./N.S.R.

$4^{3}_{4}{}^{m}$ 71°

Emulsion Batches:
IIaD-ref. 1A7 Aug 2 17 hrs 945
IIuD-e 1A7 July 25

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50287F	FOCUS TEST (α Oph.)								
50287	HD 159561	$17^h 30^m.3$	+12° 38′	20:38	20 50	0009E	+12° 32′	Fe Arc / CLEAR	
50288	(POLARIS) HD 8890	$01^h 22^m.6$	+88° 46	21:27	21:36	$08^h 20^m$ E	+89° 12′	Fe Arc / CLEAR	1850 / 1300
50289	"	"	"	21:46	22:13	$07^h 42^m$ E	+89° 12′	Fe Arc / CLEAR	1600 / 1600

Spectr. Temp
Focus ... 32
Spectr. Temp

Exp. Mtr., R Pilsch

3300 3000 35500

9200

8900

Aug 2 17hrs
Jul 25 9hrs

Spectr. Temp. 85°f ..... Dome Temp./Hum. 83°f / 70% Transparency Conditions Hazy 58

Focus 382 .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Diffuser in

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter in	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						BC	1200/50.8	BS	IIaO	1		Sl Red to	OK
FeNe Clear		3300 3000 35500	FAIR	B= 2.2	A5 III	BC	1200/50.8	BS	III aJ-dfg	1	Asm Spkk	VERY HAZY + SOME CLOUDS	weak ✓
FeNe	1850	9200	FAIR TO POOR	2	F	"	"	"	II a Oe	"		"	OK ✓
Clear	1300												
Fe Arc	1600												
Clear	1600	8900	POOR	"	"	"	"	"	"	"		"	OK ✓

Date AUG. 8 & 9 / 88 Observers TN / NSR

5m 67° (use 4m next time)

Emulsion Batches: IIIa.F-Reg. 2EO July 25 fg 9hrs 3t, 0.83, 0.71 Diffuser in

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50290	(α Oph.) HD 159561	17h 30m.3	+12° 38'	22:47	22:53	2h 13' W	+12° 10'	FeNe CLEAR	3400 3400
50291	"	"	"	23 01	23:07			"	3400 3300
50292	(δ Aql.) HD 182640	19h 20m.5	+2° 55'	23:13	23:31	1h 00' W	+3° 02'	"	30 sec 30 30
50292T	Spot Calib for 50290-92				15 min - 4810	15 V D4 Hα	7V D2 5450	7V D3	

Exp. Mtr. No	Filter
98 700	
100 400	
50 300	
50 300	

July 25 fg 9hr

Diffuser in

Spectr. Temp. 80° F Dome Temp./Hum. 77°F/70% Transparency Conditions ... GOOD - Cloudy 60

Focus 384

Spectr. Temp. 80° F Dome Temp./Hum. 75°F/83%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe	3400	No FILTER 98 700	GOOD	B=	A5		1200/*					* wrong angle	no comp
CLEAR	3400		~~GOOD~~	2.2	III	BC	58.2	BS	III a F-a fg	1	Asin Sp-Ht		Exp OK ✓
"	3400 3300	100 400	"	"	"	"	1200/40.5	"	"	"	"		FeNe str No str ✓
"	3300 3300 3300	50 300 50 300	GOOD	B= 3.68	F0 IV	"	"	"	"	"	"	SOME CLOUDS.	FeNe str str ✓
D3									"				✓ ✓

61

Wed-Thurs

Date Aug. 10-11/88 Observers T.M.

IIIa-J-efg dev Aug 14 5 min @ 68°F

Emulsion Batches: 3t, 0.71, 0.63 IIIa-F-efg 2E0 July 25 9hrs fgas; 2.89, 0.22 IIIa-J-efg 1A7 Aug 2 (diffuser in no filter)

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. no filter	Spectr. Temp. / Focus / Spectr. Temp
50293	α Oph HD159561	17 30.3	+12 38	20 22	20 29			FeNe Fe arc Clear		70000	
50293T	Spot Calib	"	"	~~38~~ 15 min @		15V D4 4810	7V D2 Hα 7V D3 5450		B filter		
50294	HD159561	"	"	20 38	20 51	00 18W		Fe Arc Clear	2600 4400	60000	
50295	HD182640	19 20.5	+2 55	21 02	23 11	00 47W	+3 03	"	3700 3000	20000 81000	
50295T	Spot Calib for 50294-95.			15 min @ D4		17.5V 3900	15V 4300	15V 4810			

Spectr. Temp. 80°F ..... Dome Temp./Hum. 76°F / 80% . Transparency Conditions Semi clear

Focus 384

Humidity in Wm Rm = 50%

Spectr. Temp. ..... Dome Temp./Hum. / 80%

Exp. Mtr. no filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
70000	?*	2.2	A5 III	BC	G=4270 1200/405	BS	IIIaF-ecg	1	Asm Sp-Kit	* CCD camera poor	✓
							IIIaF-ecg	4	—"—		✓
60000	?	2.2	A5 III	BC	G=5430 1200/50.7	BS	IIIaF-ecg	1	"	end of plate broken off	s/str ✓
20000 ~~01000~~	*	368	F0 IV	"	"	"	"	1	"	Cloudy	✓
							IIIaF-ecg				✓✓

Comparison Type/Filter	Exp.
Fe/Ne Fe arc Clear	
Fe arc Clear	B filter 2600 4400 3700 3800

63

Sun-Mon

Date Aug 14-15/88 Observers TA Eds

1.94, 0.43

Emulsion Batches: 098-e02 985-A 4g 11/88

Diffuser IN

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50295F	Focus and Exp test			21 15		04 00E	+21 20	FeNe Clear	60 30
	TuCas	~~00 23.37~~	~~+51.00.2~~	~~05 50 49~~					~~379~~
50296	TU Cas HD210398	1950 00 23.6	1950 +51 00	20 47 ~~00 50~~	22 23 ~~02 26~~	W	+51 12	FeNe Clear	7 sec 7 sec 7 sec
50296T	Spot Calib	for 50296-97			15 min	15VD3 4810	7VD1 Hd	7VD2 5450	
50297	TuCas HD210398.	1950 00 23.6	+51 00	22 27 ~~02 30 28~~	23 50 3:53.	W	+51 12	FeNe Clear	7 sec ~~7.00~~
	in Main Building 4:39.00			Clock Time - 5 hrs.					
	= 8:42. in dome								
				1:47.	→ 3 23.				
				3:27	→ 4:53 EST				
1210 1211	Hartmann test								
1212	Flat				600s				
1213	"				600s				
1214	Dark				3600s				
	1hr flat left running								

Aug 11/88

Diffuser IN

Spectr. Temp. 84°f Dome Temp./Hum. 85°f / 70% Transparency Conditions Thunderstorms 64

Focus 383

Spectr. Temp. 77°f Dome Temp./Hum. 72°f / 90%

no filter (Blank IN)

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe/Ne Clear	60 30	6900 & 885				BC	G=4270 1200/40.5	BS	098-e	1	TUCAS Hα Emission	(Aug 14 Dev with IIIaJ) Center	S1 Red S/str
Fe/Ne Clear 7VD2 5450	7 sec 7 sec 7 sec	6914 6524	poor	6.5 → 8.5	F3II F5II	BC	1200/40.5	BS	098-e	1	Hα Em.	semiclear	V wk ✓
									098-e				✓ ✓
Fe/Ne clear	7 sec 7 sec	23886.	OK		F3II F5II	BC	1200/40.5	BS	098-e	1	Hα Em	clear	wk ✓
						PCS	180W/52°						

Wed–Thurs 1st Night with 200u Fiber Feed.

Date Aug 17–18/88 Observers KK–TM (* Note, Times are Daylight Savings Time).

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T. *	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
	1hr Flat Fld							ND 1.2 A=1/16	3600		
	Long Comp	300–300 secs		20 42*		0 0		Fe A Clear	300sec 300sec	980	18
	HD171232	1988 18 32.2	+25 29	21 03	21 33	0 33 E			1800	800	25
	Comp			21 3353				Fe A Clear	300		
	A 1874 A	1900 16 55.1	+47 31	21 46 56	22 16 59	01 51 W	+47 21		1800	300	10
	Comp							Fe A Clear	300	180	7
	HD 195987	20 29.4	+41 32	22 28 51	22 58 54	20 56 E	+41 50		1800	650*	25
	Long Comp							Fe A Clear	600sec	350	14
1223	HD 194071 *	1989.5 20 22.2	1989.5 +28 13	23 20	23 50	0 01 W	+28 11		1800	500	20
	Long Comp (Last)			23 51 26					600sec	500	8
	Long Flat Field (on timer)			0004		0 0	(ND 1.2	Filing A 1/16)	~~7200~~ 3600sec	2100	70

Spectr. Temp
Focus
Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. 76°F/80% Transparency Conditions. H.Q. Trig

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 76°F/98% Wm Rm H = 70%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
NO 1.2 A:1/16	3600						PCS	1800/52°	BS	5000 Å	1B			
FeA clear	300se 300se	280	18								1A		Chiller @ +1.0°C	
	1800	800	25	50-50	V= 7.7	G8III					1B	Std Vel	some cloud	
FeA Clear	300										1A		West of 2 stars in Finder (close)	
	1800	300	10	poor	V= 8.0	K8					1B	Asm Sp-Kt	Star with faint comp	
FeA Clear	300	180	7								1A		Wm Rm H = 58% Chiller = 1.0°C	
	1800	650*	25	OK	V= 7.09	G9V					1B	Asm Sp-Kt	Very hazy as high as 1000 cnts	
FeA Clear	600se	250	14								1A			
	1800	500 →100	20	OK	V= 8.13	G8III	(500 cnts in clear hazy sky)				1B	Std Vel	* Field some Cloud	
	600se	200	8								1A			
Tung A 1/16	7200	2100	70								1A		~~Time was only set for 200s~~ ~~added another 3600s OKK~~	

67

Thurs-Fri

Date Aug 18-19/86 ..... Observers ... Tu/Mki-Tu ..... PCS

Emulsion Batches: .....

Spectr. Temp. .....

Focus .....

Spectr. Temp. .....

Changed PS2 to EST.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1	Flat						(ND 1.2	Tung H1/16)	1 hr		
	2nd Flat						"	"	1 hr		
	1st Long Comp			19 53 47	20 03 47		clear	FeA Clear	600		
	HD 171232	~~17 08 05~~ 18 32.2	1989.5 +25 29	20 44 57	21 04	00 09 W			1200	450*	10
	Long Comp							FeA Clear	600	300	15
	HD 171232	18 32.2	+25 29	21 19 30	21 39 30	00 44 W	+25 28		1200	500*	15
	Long Comp							FeA Clear	600	330	10
	HD 195987	20 29.4	+41 32	21 54	22 24	00 31 E	+41 51		1800	550	20
1233	Comp							FeA Clear	600	300	11
	TU VUL										
	grating Steps of 20 done & recorded										
	BD Cass	1986 00 53.9	+64 01	22 59.40		W	+64 01			120	4
				03 27						120	4
1250.	Flat — 3800s	200s at end of observations (timer was set for 200s, although									
1251-2	Hartmann test							FeA	180		

Spectr. Temp. ..... Dome Temp./Hum. 68°F/67% Transparency Conditions Semi Cloudy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung H1/16	1/hr						BC	1800/522°	BS	5000Å			*Slightly diff Tilt than previous	
"	1/hr												night.	
FeA Clear	600			poor										
	1200	*450	10	very poor	V= 7.73	G8III					IA	std Vel	part cloud * as high as 800	
FeA clear	600	300	15								IB		mostly Cloudy	
	1200	*500	15	very poor	V= 7.73	G8III					IA	std Vel	Clear now - (* to 700 cnts)	
FeA Clear	600	320	10								IB			
	1800	550	20	poor	V= 7.09	G9V					IA	Asm Sp Kt	as high as 850 cnts	
FeA Clear	600	300	11								IB			
							Good em line @ step 595						Mapping ~~the~~ Spectrum	
							Many em lines @ step 535 (1st strong one)						(stepping Grating)	
		120	4		V= 9.0								@ Step 595?	
		120	4					step 555						
, although		integration was 7200)					added another 3600			This morning		KK		
FeA	180													

Date Aug 19-20/88 Observers KK - testing / T.n. - KK OBSERVING

Emulsion Batches: .....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. Exp. Mtr.	Spectr. Temp. Sec.
1253-4	Hartmann test pair, after 5 steps refocus (=0.1 mm 'A')							FeA/clr	180		
~~1254~~	~~Long comparison~~										
1255-6	Hartmann Test pair after refocus to "best" position (-0.22 mm 'S')							FeA/clr	180		
1257	Long comparison (600s)							FeA/clr	600	30+	
1258	Long Flat							ND1:2	7200		
1259	Long Comp			18 53	19 03			FeA Clear	600	320	10
1260	(Solar Diffuse, Scattered)			19 16	19 46	0 0	platform	Comp posn	1800	240	9
1261	Comp			19 49	19 54			FeA Clear	300sec	340	9
1262	HD 144287	16 00.0	+25 30	19 56	20 16	W	+25 15		1200	1000	30
1263	Comp							FeA Clear	300	280	9
1265	HD 147379	16 16.6	+67 28	20 28	20 53	2 14 W			1500	250	10
66	Comp								300	350	7
1267	H173740 (B)	1988.6 18 42.39	+59 36.9	21 01	22 01	00 58 W	+59 35		3600	100	7
1268	Comp									690	8
1269	HD173739 (A)	18 42 39	+59 36.9	22 09	22 39	0 36 W			1800	140	10

Spectr. Temp. ..... Dome Temp./Hum. 68°/65% Transparency Conditions . Sl. hazy 70

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeA/clr	180						BC	1800/53°	BS	PCS				
FeA/clr	180							"	"	"			focus exact in center	
FeA/clr	600	300+						"	"	"				
ND1.2	1200													
FeA Clear	600	320	10											
Cont/ Close	1800	240	9								IA			
FeA Clear	300	380	9								IB			
	1200	1000	30	OK	V= 7.07	G8V	[note, may have written 2x] (Yes, I did Tu)				IA	Asm Sp kk	Cnts as high as 1200	
FeA Clear	300	280	9								IB			
	1500	250	10	OK	V= 8.63	mov					IB	Asm Sp kk		
	300	350	7								IA			
	3600	100	7	OK	V= 9.69	dM5	BC	1800/53	BS	5000Å PCS	IB	Asm Sp kk	Faint one South of pair	
		280	8								IA			
	1800	140	10	OK-fair	8.90	dM4					IB		North one of pair	

71 #2

Date ..... Observers ..J.n.....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Spectr. Temp.
70	Comp									30	
71	HD 171232	1988.6 18 32.2	+25 29	22 48	23 07	W			1200	840 16	
SP001272	Comp								300	300 6	
1273	B M CASS	1988.6 00 53.9	+64 01	23 34	00 04	E	+64 00		1800	200 6	
1274	Comp							FeA Clear	300 sec		
1275	BM CASS	00 53.9	+64 01	00 18	00 39	2 35 E			1200	140 5	
1276	Comp						ND 1.2 +	FeNe A 1/4	300	200 10	
1277	FeNe	@ ≈ 580 steps from		Y limit			"	A 1/2	90	300	
1278	"	≈ 595					"	A 1/4	140	240	
1279	"	610					"	"	150	260	
1280	"	625					"	"	150	270	
1281	"	640					"	"	150	180	
1282	"	655						A 1/2	150	225	
	"	637	Went down	18 steps to Hα hopefully				"	160	600	
SP001283, KKT	Flat	(on timer)					ND 12	Tung A 1/16	7200	120/40	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +56°F / 80%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		300					BC	1800/53	BS	5000Å PCS	IA			
	1200	300*	16	ok	v= 7.73	G8m					IB	std vel	as high as 1000 cnts	
	300	300	6	ok										
	1800	200	6	ok							IA		as high as 250 cnts	
FeA clear	300									5000Å	IB			
	1200	140	5	ok	(as high as 200 cnts)		BC	1800*/62°	BS	Hα	IA		(G) ≈110 steps from 5000Å	
FeNe A 1/4	300	200	10								IB			
A 1/2	90	300												
A 1/4	140	240												
"	150	260								Note: Upon stepping grating to Hα, I				
"	150	270								noticed a larger signal around 5800Å				
"	150	180								didn't have time to look along it				
A 1/2	150	225								(30 down from Hα strong signal)				
"	150	600		Yes,	In back.		Not	written						
Tung A 1/16	7200	1700/40									IB			

mon - Tues

Date AUG 22-23/88 Observers T.S.

Emulsion Batches: W 2,25,0,36 098-02E 985 - AUG 11/88

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50298	CH Cyg HD182917	19 21.9	+50 13	19 59	20 59	00 33E	+50 11	FeNe Clear	7-7-7
50298	T Spot Calib for 50298					15min@	15V D3 4810	7V D1 Hx	7V D2 5450

Spectr. Temp.
Focus ... 3
Spectr. Temp
Exp. Mtr.
13200
500

5 - Aug 11/88

Spectr. Temp. 68°F Dome Temp./Hum. 65°F/65% Transparency Conditions Part cloudy - Cloudy

Focus 386

Spectr. Temp. 67°F Dome Temp./Hum. 58°F/

no filter (Blank in)

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe Clear	7-7-7	13200 500	OK	V≈ 8	Mb	BC	G4270 1200/40.5	BS	098-E02	1	Observatory	750 cnts for 7 sec comp Cloudy	✓
V DI 7 D2 Hx 5450									098-E02				✓

Thurs - Fri

Date Aug. 25 - 26/88 Observers T.n.

Emulsion Batches: IIa0-e 1A7 Jul 22

Off out

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50299	HD182917	19 21.9	+50 02	20 50	21 01	00 22 E		Fe Clear	330 0

Spectr. Temp

Focus

Spectr. Temp

Exp. Mtr. *	
4500	
* No filt	
CH	

Jul 22

Off out

Spectr. Temp. 67°F Dome Temp./Hum. +65°F/75% Transparency Conditions Clearing To

Focus 3.88

Spectr. Temp. Dome Temp./Hum.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. *	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe Clear	330 0	4500	OK	9 approx	Mb Hgen	BC	1200/508	BS	IIaO-e	1	Obs pgm	Cloud; Looking like Rain	VVVVK
* No filter used; No counts at all with Blue filter. Blue used for initial Fe arc counts though.													
CH Cyg looked very Red; maybe more Red than last night observed.													

Date Fri Sat Aug. 26-27/88 Observers Tu... Lg (some)

8h 680 1.78, 0.29

Emulsion Batches: IIa-O-E 1A7 July 22

Diffuser 1n

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50300	CH CYG HD182917	19h 21.9	+50° 02	19 55	22 39	01 18 W	+50 11	Fe Arc Clear	990 **
50300T	Spot Calib for 50299–50302				15 min @ 15V	D4 3900	D3 4300	D2 4810	Blue Filter
50301	HD 203156	21 15.4 1988.6	+37 49	22 46	23 37	00 24 W	+38 09	Fe Clear	1650
50302	HD 171232	18 32.2	+25 29	23 44	01 17	04 52 W	+25 27	"	1500 1730

Spectr. Temp
Focus 3
Spectr. Temp
D2 filter

Exp. Mtr.	
42,200 42,010	
Blue filter	
10,300	
2600	

July 22

Diffuser IN

Spectr. Temp. 67°F ..... Dome Temp./Hum +64°F / 75% Transparency Conditions Fine - sl haze 78

Focus ....388.....

Spectr. Temp. 64°F ..... Dome Temp./Hum. +58°F / 90%

no filter

[Fe Arc ≈ 40 secs for 1500 cnts with Diffuser in.]

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe Arc Clear	990 **	42,200 42,010	OK	≈10?	MG	BC	G-5430 1200/5018	BS	IIaO-e	1	Obs pgm	* ≈ 3906 2600 cnts Fe Arc without filter	wK
D2 4810	Blue Filter	Blue filter							IIaO-e				vi
Fe Clear	1630	10,300	Fine	≈6	≈G	BC	1200/5018	BS	"	1	Ceph-Run	2 comps begin & end	OK
"	1500 1730	2600	"	~~7~~ 6 3	~~G~~ G8 III	"	"	"	"	1	stl Vel	(Same one used for PCS)	Fe sl wk wk

well, I forgot how slow this would be photographically; Very fast on PCS.

79 Mon-Tues

Date Aug.29./.30./.88. Observers ...Tn.....

Emulsion Batches: 5m 680 2,53,0,14 ..III.a-le.fg..147..... Aug 25 23hrs 945 cnts

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp / Focus ... 38 / Spectr. Temp Blue filter Exp. Mtr.
50303	HD 137909	15 23.7	+29 27	19 39	20 17	03 05W	+2907	FeArc Clear	1800 2840 1600	20 360 20600
50303T	Spot Cals for 50303-06				15min	@D4	17.5V 3900	15V 4300	15V 4810	
50304	HD 159561 20 0 ph	17 30.3	+12 38	20 24	20 31	01 18 W	+	Fe Arc Clear	2600 2670	35600
50305	HD 182640	19 20.5	+2 55	20 38	20 58	00 11 E	+03 03	"	2590 2570	42135
50306	HD 188041	19 53.3	-03 07	21 07	22 57	W	-3 11	"	620 2800	6390 14177
50306F	Focus test			23 08	23 14	W		FeNe Clear	900 1740 2280	(200 sec

Spectr. Temp. 65°f ..... Dome Temp./Hum. 60°f/80% Transparency Conditions .. Fine - cloudy 80

Focus ... 38.7 .....

Spectr. Temp. 63°f ..... Dome Temp./Hum 56°f/93%

Blue filter

Diffuser in for comps

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe Arc Clear	1800 2840 1600	20 360 20600	ok	3.93	F0p	BC	G=5430 1200/50.8	BS	IIIa-J-efg	1	Asm-Sp kk		comps/wk vs/wk ✓ ✓
13 4810									IIIa-J-efg				
Fe Arc Clear	2600 2670	35600	ok	2.2	A5 III	BC	1200/50.8	BS	IIIaJ-efg	1	Asm Sp kk		fiducs?? ✓
"	2590 2570	42135	"	3.68	F0 IV	"	"	"	"	1	"		~~sat~~
1	600 2800	6390 14177	"	5.85 ~~A5p~~	A5p	"	"	"	"	1	"	DB. Exp] same cloud	✓
Fe He Clear	900 1740 2280	(200 secs for Comp)				"	"	"	IIaO	1	diffuser	OUT	Carbon vs Red

81

Ly/Tn Tour earlier (Saturn's Ring) ok

Date Aug 30-31/88 Observers Tn

2,92,0,22

Emulsion Batches: III a-J-esq 1A7 - Aug 25

23 hrs Fgas

Diffuser OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50307	HD 159561	17 30.3	+12 38	21 09	21 38	2 38 W		FeNe Clear	793 * 400 800
50308	HD 182640	19 20.5	+2 55	21 45	22 23	1 19 W	+3 03	"	~~130~~ 1080 1336 1100
50308T	Spot Calib	for 50307-08	09-16	15 min @ 1D4		17.5V 3900	15V 4300	15V 4810	

Spectr. Temp

Focus

Spectr. Temp

Blue Filter

Exp. Mtr.	
26780	
26800	
25,000	
27800	

23 hrs Fogs
- Aug 25
Diffuser OUT

Spectr. Temp. 67°F Dome Temp./Hum. 61°F / 85% Transparency Conditions Clearing

82

Focus 387

Spectr. Temp. 65°F Dome Temp./Hum. 58°F / 95%

Blue filter

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks FeNe Cryptina	Quality
FeNe	793 *	26780										* 99	comp OK
Clear	400	26800	OK?	2.0	A5 III	BC	1200/5008	BS	IIIa-J-ef	1	Asm Sp-KK	793 cnts = 99 secs 2x99 sec 99	OK
	920	25,000										130 sec comp at beginning	
"	1334	27800	poor	3.68	F0 IV	"	"	"	"	1	"	160 mid 130 end	OK
	1100												
"									"				"
10													

Thurs/Fri

Date Sept. 1/2/88 Observers Tn

Emulsion Batches: 23hs Fgs
Ma.efg.147 - Aug 25
Diffuser OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50309	HD159561	17 30.3	+12 38	20 08	20 26	0123 W		FeNe clear	1775 1730
50310	HD 182640	19 20.5	+2 55	20 35	21 18	0030W	+302	"	1830 1800
FM000100.TN	"	Seeing Test		20 55	23x23 pixels	3 frames	+302		
DT00016GTN	"	DRIVE Test	("in" N: posn)	(0 Real time frames INI)		00 30 W	+302		160 Fms
50311	HD 209790	22 00.9	+64 08	21 41	23 26	0011E	+6434	FeNe clear	1800 1800 1800
FM000101.TN	"	"	"	22 40	23x23	0055E	for test		
FM000102.TN	" (Seeing test)	"	"	23 40		0000	+6434	3 Frames	

102.TN includes previous frames. FM000101.TN

		XFWHM	YFWHM
FM000101.TN (Image acquisition mode)	Frame 1	1.768740	1.486567
	2	1.736539	1.907987
	3	1.758026	1.537399

~~FM000102.TN~~ ~~Frame~~

~~Here are the frames in the file 102. [illegible]~~

		XFWHM	YFWHM
FM000102.TN	Frame 1	1.768740	1.486567
	2	1.736539	1.907987
	3	1.758026	1.537399
(Possibly a double star)	4	1.977383	2.018247
	5	2.033799	2.009622
	6	1.942637	2.096860

These frames belong to file 101.

Spectr. Temp. 72°F Dome Temp./Hum. 70°F/60% Transparency Conditions Hazy

Focus 386

Spectr. Temp. 70°F Dome Temp./Hum. 66°F/70% CCD image quiet/Fixed today

Blue Filter

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe clear	1715 1730	45500	Fair	22	A5 III	BC	1200/50.8	BS	IIaJ-eg	1	A5m-Sp-KK	160 secs / FeNe comp	comp. is ok OK
"	1830 1900	25305 25000	"	3.68	F0 IV	"	"	"	"	1	"	(≈ 90 cnts FeNe in Stellar)	~~Fa~~ OK
			OK									Light SW breeze	
	1805		OK	Z • 9	Leaving worm gear							during last comp	
FeNe clear	1800 1800 1800	21600 20100	OK	4.63	A3m	BC	1200/50.8	BS	IIaJ-eg	1	A5m-Sp-KK		OK
			good	"	"	(Image Acquisition mode during mid comp)						Pice dbl star	
3 frames		OINT	OK	4.63	"	"		150μ	(CCD diaphram turned in)			Slit View without deflector	

85

Tues-Wed

1st {Reticon / Echelle} tests with 200u fiber feed

Date Sep. 6-7/88 Observers Tn

Emulsion Batches:

Plate No.	Object	R.A. ~~1900~~ 1989.5	Declination ~~1900~~ 1989.5	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
3985	HD 124897	14 15.2	+19 14	19 23	19 29	04 00W	"		
4645	"			19 30 14	19 43				
	When doing "Plot" of previous records, I accidently tried to plot 3985 and program bombed								
4645	Vega	18 36.5 (1986.5)	+38 46	20 01 42	20 09				
	Vega			20 10 46	20 30	W			
	Comp for Vega (Echelle source) (Prism out)							Th AR Clear	150sec
	Flat Field - Spect Contr source:			do in stellar mode.				Tung Clear	60sec
	Vega	18 36.5	+38 46	20 41	21 11	01 20W			
	Flat Field							Tung Clear	60sec
	Dark	(Dark slide closed on Echelle)							1800sec
Fm000	103. Tn BS7589	19 51 48.1 (1989.5)	+47 00 00	21 35		00 32W	+47 00		
	104. Tn HD194071	20 22 11.5	+28 12 45	21 50		00 20W	+28 13		
	* Ret.DAT Copied to diskett as SEP0788.DAT [HD Ret.Dat deleted OK?]								

Spectr. Temp. ..... Dome Temp./Hum. 57°F / 64% Transparency Conditions .. Clear 86

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 53°F / 80% S1 Hight (X GR Tilt 4102) Echelle Grat tilt 1.84

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
none no exp meter for guiding	poor	V= -0.04	K2 III p	Echelle Reticon	x grating .4102	[illegible]	~5700Å		T=-2.800	with 200μ fiber feed	88/1000
									T=-3.312		
I restarted, but most parameters I guessed at											
										Poor.	54/1000
	SOSO	V= 0.03	A0 V a		600, 5770	50μ	5770	650μ	T=-3.968	600, 5770Å	482
		XFWHM	YFWHM		"	50μ	"	"	T=-4.160		
FM000103.TN	Frame 1	2."852659	2."207532								
	2	2."501937	1."886415							OK Flat Field →	1000
	3	2."759606	2."245899								
FM000104.TN	Frame 1	2."388348	1."795437						T=-4.266		609
	2	3."478595	2."443778								
	3	2."896817	3."003755								
									-4.375		
(Poor and variable seeing)											
31x31 pixels. Below image of 200μ fiber on fiberhead										Seeing test,	
31x31	poor	V= 8.13	"	"	"	"	"			" "	
Seeing test frames were the best of a few. Seeing was variable and sometimes extremely bad.											

87 Wed/Thur. Echelle Reticon

Echelle x time = -1 hr from EST

Date Sept. 7-8/88 Observers K.T.-Tn

Emulsion Batches:

Spectr. Temp

Focus

Spectr. Temp

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. #	S
2L	tungsten; 68S comp, 134C THA hollow cathode, 200D DARK;										
266C	Comp	Thorium, AR 1989.5									
332S	HD 124897	14 15.2	+19 14	19 34 34	20 02 43	Limit W		THAR	150 sec	351	
398S	Flat Field in	S mode						Tung clear	2 min	1061	
464S	" "	" "						"	90s	833	
	HD137909 B Cor Bor	15 27.3	+29 09	20 14 16	21 14 39	W		THAR 5 30C	3.205 cnts 60 sec	840	
	VEGA	18 36.5	+38 46	21 23 09	21 41 29					357	
728S	"	"	"	21 45 15	21 57 38					250	
	"	"	"	21 58 29	22 14					250	
	Comp			22 15				ThAr	60	99	
	Flat (Stellar mode) ~~x4~~			22 17					30 sec	264	
	in										
	Dark			22 23	22 53				1800	(while	
FM105.TN	HD194071	Fiber head seeing test				01 10W	+28 13			Best	
	Dark ~~attempt~~ 2nd attempt			22 55					1800		

Spectr. Temp. ..... Dome Temp./Hum. +63°F / 60% H Transparency Conditions .. Fine 88

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +55°F / 77% * Exp meter setup on Other Voltage = 1400 V

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. *	Seeing	Ptg. Mag.	Sp.	~~Inst~~ X grating	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
									Centered Sodium D Lines			1.84 Echelle tilt	
							Tilt/Freq						
THAR	150 sec	351	so so	0	K2III	.4013	600, 5890	50μ	5890Å		T=-2.933	Cold Box on Exp meter turned off for Readout	2812
Tung Clear	2 min	1061											
"	90	833											3333
THAR 530C	3205 cnt 60 sec	~~940~~	so so	3.93	F0p						T=-2.886	THAR - 3205 cnt units Picket fence!!	94 ~~3295~~
		357	n?	V=0.05	A0Va						Exp meter may be unstable.	Picket fence	
		250					XFWHM	YFWHM			T=-2.886	Off this time	1307
		260			FM000105.TN	Frame 1	2.719564	2.345000					1303
						2	2.554162	2.586182					
ThAr	60	99				3	2.458089	3.518217					
						4	2.401347	2.156000					
	30 sec	264									T=-2.883		1128
	1400	(while closing up)									T=-2.881	Picket fence (kept)	1357
		Best frames after 1-4 trys.									T=-2.873		
	1800										T=-2.813	OK	18
											T=-2.986 after Top up	in Estimated heating effect	

89

Thurs/Fri

Date Sept. 8-9/88 Observers JBL-Tu

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
2L	tungsten-halide (~~spect controller~~) prob from echelle source)								
68D	DaRK								
134C	Comp Long			18 42				Th Ar Echelle	120sec
200S	Flat (From Spect Controller)			18 50				Jump Clear	30sec
266S	HD 137909	15 27.3 (1989.5)	+29 09	19 18	20 18	03 45 W	+29 08		
332S	Flat (Spect controler)			20 20					
398S	Vega	18 36.5	+36 46	20 24 40	20 34 24				10min
464 ~~398S~~	Vega			20 35 55	20 51 14				15min
530 ~~464S~~	Vega ✓			20 52 46	21 07 32				15min
596 ~~530S~~	Vega ✓			21 12 45	21 28 06				15min
662 ~~596S~~	Vega			21 31 20	21 40 05				<10min
728 ~~662S~~	Vega ✓			21 42 37	21 53 (not guided)				12min
794S	Vega			21 55 26					

Spectr. Temp. ..... Dome Temp./Hum. 63°F/62% Transparency Conditions ... sl. hazy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ...../.....

X: meter cooler unplugged; not just "off"

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst. × Grating	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
							Tilt/freq		5890Å				
													31
Th Ar Echelle	120sec												
Tungsten Clear	30sec												1474
			POOR ?	3.93	FOP	0.4013	600, 5890	50μ			T=-2.340	Picket Fence	
													1496
				v= 0.05	HOV$_a$						T=-2.325	~~OK~~ (Red end funny)	1324
	10min											" " "	1674
	15min												
	15min											Red end OK no spike	1194
	15min		4Bs, minimal guiding or focus, no "P" for plot									" " "	493
	20min		(4Bs guided excessively,									Red end noisy + spike	592
	15min		7Bs, "P" for plotting + PRinting during integration									no Noise	492
			"7Bs", guided									Red end v noisy	

91 #2

Date Sept 8-9/86 Observers T.M.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
865S	Flat			2214					30sec
926C	Comp	Echelle Source		2226				THAR	120sec
992D	DARK			2230					1800sec
	DARK								10000s

Many "DARK TST" done "S" mode, DARK SLIDE in for 10-40 secs,

Results: RA set → no noise - only 0-4 on PCS exp meter
Dec Set or Guide. always noisy - 10 → 65 on PCS " "
DOME TURNING → No noise - (Don't know about PCS Exp meter)
Clock DRIVE ON & OFF etc → No noise on DARK int.)

Conclusions: I don't need any statistics to tell me that I can always induce a "Picket fence" on a short 10sec integration in "S" mode by excessive Dec setting or guiding; especially in Dec guiding.
- Normal non excessive guiding in dec results in a noisy "Red" or "Readout start end noise with hump at the start. Always!

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ...../..80%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	30sec												
THAR	120sec												6462
	180sec											sl hump @ Reland?	31
	1000s									(T=-2.346 @ 23/3EST)			

Testing various posible noise sources.

Dec Guide for a 20 secs produced "Picket fence," Note during last nights' "Picket fence" darks, I was using dec guiding for seeing tests.

[Dec Guide motion (Low speed), seems to give higher noise on PCS then Dec Set does by X2 [10-80 cnts]]

Note - Generator Turned "ON" or "OFF" can cause "picket Fence"

→ Prob "Picket fence" effect on long normally guided exps is the result of accumulative noise or rare high noise from normal guiding.

→ I don't know what can cause same effect in daytime testing.

Emulsion Batches:

Date Sept 9/88 Observers KK – continuing previous night

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1356	SKY			9:07.5 ~~9:00~~	9:09.0 ~~9:07.5~~				
1322	SKY			9:09.8	9:13.2				
1388	SKY			9:15 ±	9:21				
	FLAT (S)							Tungsten	30s
1520	FLAT (S)							"	30s
1586	FLAT (L)							Tung (1/4)	60s
	FLAT (S)							tung (1/4)	90s

Spectr. Temp.
Focus
Spectr. Temp
Exp. Mir.
Warm

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		warm			G0V	Echelle Reticon	600 .4012	50μ		1872 Ret	test		464
					"	"	"	"		"	"		1025
					"	"	"	"		"	"		1635
Tungsten	30s												1365
"	30s												1352
Tung + (1/4)	60s												1236
Tung + (1/8)	90s												464

Fri-Sat

Echelle Ret Work (Noise problem solved)

Date Sept. 9-10, 1988 Observers T.H.

Epoch is 1989.5 except for HD137909

Emulsion Batches:

Plate No.	Object	R.A. ~~1900~~ 1989.5	Declination ~~1900~~	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp.	Exp. Mtr.
2L	tung-halide Flat	+ 68S = Lamp 30 sec Full (Spect Contrd-source)									
134C	Comp TH-A hollow Cath										
200D	Dark										
266C	Comp							TH-AR	120sec		219
332S	HD124897	14 15.2	+19 14	19 29 14	19 45	4 30 W		Exp meter V= 1401			163
398S	HD137909	15 27.3 1986	+29 09	19 51 30	20 45 48	4 22 W					D
464S	Flat ~~TH-A~~	(Spec Contr source)		Tungsten	20 49				~50sec		600
430S	Vega	18 36.5	+38 46	20 57 25	21 16 15	1 40 W					418 +
~~530S~~	~~Deneb~~	~~20 41.0~~	~~+45 15~~								~~418~~
596S	Vega	18 36.5	+38 46	21 19	21 38	2 00 W					418
662S	Deneb	20 41.0	+45 15	21 44	22 19	0 38 W					N/A
728S	Polaris	02 14	+89 12	22 41	23 19 31	4 20 E	+89 12		40 min		N/A
794S	Flat ~~TH-A~~ Lamp	30 sec (Spect Contr source) tungsten									
860C	Comp TH-A			23 33					120 sec		
926S	TST	accidently saved - shows effect of much focus motor running									

Spectr. Temp. ..... Dome Temp./Hum. +66 / 70% Transparency Conditions sl. hazy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +60 / 70%

CCD very noisy ∴ Till/Freq = 600, 5500

Bit satellite From WSW, terminator between Polaris & Cliff

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks @ 20 37 Cosmos?	Quality
						Echelle Reticon	600/~~4338~~	50μ	5500Å	1872 Ret			
													29
TH-AR	120sec	219	?										
Sp mag V = 1401		163	?	0	K2III						Std Vel & spectrum	T=-2.860 some Dec guide needed	OK 1384
		0	ok	4	F0p						Asm Sp- KK	T=-2.919 minimal Dec guide	OK 234
	50sec	600											2480
		~~A18~~ +	?	0	A0Va	(Is this added to previous Flat?)			(no probably)		Looks Flat	T=-2.959 ???->	3251
		~~A18~~									I guess it is	flat there.	
		A18		0	A0Va								2803
		n/A	so so	V = 1.25	A2Ia							T=-2.965	1389
	40mm	N/A	poor	2	F							T= 2.981 [hump @ Red end]	683?
			note, the only "noise" noticed was the "hump"										1141
	20sec		at Red end for Polaris exp.										4092
motor running											(backed up on disc)		

97 Tues-Wed Echelle Ret [Repeat of Last Fri for Comparison purposes]

Date Sept 13-14 1988. Observers Jn

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
2,68,134,200L	Tungsten-halide			Flats during afternoon						
266D	DARK 1hr									
3325	α Boo HD 124897	14 15.2	1989.5 +19 14	19 28 00	19 42 07	04 44 W			15min	N/A
398C	Comp			19 43 34				Th-Ar Echelle	120sec	
464 S	HD 137909	15 27.3	1986 +29 09	19 49 15	20 47 46	04 30 W				
530 S	Flat			20 51 24	20 52 25		Echelle	Tung	50sec	Exp meter
596 S	Vega	18 36.5	+38 46	21 04 04	21 33 47					100
662 S	Deneb	20 41.0	+45 15	21 40 08	22 40 47	01 17 W				98
728 C	Comp			22 42					120sec	≈ 110
S	Flat ≈ 50 secs		[Spect Control Tungsten]		23 00 49					
D	DARK			23 04 52					1800	
D	DARK Long		[all lights off; (nothing switched either on or off after start)]						3hrs	

Spectr. Temp
Focus
Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. 56°F / 80% Transparency Conditions ... Fine ...

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 49°F / 94% Sl gusty

vv bad seeing

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						Echelle Ret	600/1338	50μ	5500Å	1872 Ret			
											200L Looks OK, but others noisy?		
												Noisy, isn't it? 93/1000 Flattered	
	15min	N/A	? poor	0	K2III						std vel	T=-3.137	742 OK
Th-Ar Echelle	120sec												3943 OK
			v bad	4	F0p						Asm Sp-KK	T=-3.126 some noise (hump)	109 ok ?
Tung	2x 50sec	(Exp meter balanced)										T=-3.101	1989
		100	vv poor	0	A0Va							T=-3.109 (Rad hump)	1175
		98	h	1	A2Ia							T=-3.105 OK	733
	120sec	≈ 110										T=-3.115	1055
												T=-3.102	1903
	1800											T=-3.102 OK	20
	3hrs		Dewar topped just before start									T=-3.137 at start	

Note - this dark had the 1st appearance of the 1/2 picket fence effect that also appeared next night.

Wed-Thurs Echelle Reticon with 200u Fiber Feed

Date Sept. 14-15, 1988 Observers K.K.-T.G.

Emulsion Batches:

Spectr. Temp.
Focus
Spectr. Temp.

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
68 S	Flat							Tungsten	30s	
~~S~~	DARK (in Stellar mode)			19 1206	1954					
266 S	DARK (" " ")			19 5855	20 1814					
332 S	HD8890 Polaris	01 22.6	+88 46	20 21	20 00	0614 E	+89 11			21
398 S	"	"	"	21 05	21 5433	0520 E	"			63
464 C	Comp			21 5731				Th Ar echelle	120sec	92
530 C	Comp Report			22 0706	220906			"	120sec	85
S	HD 3712	1989.5 00 39.9	+56 29	22 1256	22 5308	E				31
C	Comp (1st try did "picket fence")			2306				Th Ar echelle	120sec	
S	Flat (Spect Controller source)			23 0935				Tungsten Clear	30sec	52
D	DARK			23 1233					1800sec	
D	Long DARK	3 hrs		00 30	All lights off before start					

Spectr. Temp. ..... Dome Temp./Hum. +60°F / 62% Transparency Conditions Part cloudy gusty 100

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. + ... / 93%

Slit Length = 650μ

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung/Blue	30s						600 A338	50μ	Petrum				
		Generator turned "off" after start; turned back on after Restart.										Not Kept	9458 picket
												OK	18
		21	poor	2	F	Echelle Ret	600 /	50μ	3500Å	1872 Ret	Asm-Sp-KK	T = -2567 OK	442
		63	SOSO	2	F				Readout Rejected OK		1st Readout on 2nd.	T = -2567 some cloud	841
Th Ar echelle	120sec	92							(Readout took a few trials before this result)			half picket fence effect Suvel and plotted	
n	120sec	85										T = -2559 OK ~~half picket fence, odd~~	
		31	POOR SOSO	2.5	KO IIIab						std Vel	T = -2555 3999 cnts 560 cnts	
Th Ar echelle	120sec											T = -2550	3910
Tungsten Clear	30sec	52											1066
	180Csec											T = -2552 OK	25

101

Thurs Fri

Echelle Ret with 200a fiber feed

Date Sept. 15-16/88 ... Observers ... T.H. .....

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.
2,68,134L	Flats during afternoon (Tungsten halide) From Echelle source.									
200C	Th-A hollow cathode (afternoon)									
266D	Dark (1hr) during afternoon - written @ ≈ 18 30									
332C	Comp			18 54 27	18 56 23	while on α Boo		Th Ar Echelle	120	
398S	Flat	Spect Controler		18 58 46	18 59 42			Tung A=1/2	30sec	59
464S	HD124897 α Boo	14 15.2	1989.5 +19 15	19 03 34	19 16 10	04 27 W				75
530S	Flat	Spect Controler		19 18 26	19 19 20			Tung Clear	50 sec	197
596S	HD 137909 B CoR BoR	15 27.3	1986 +29 09	19 30 12	20 23 22	04 23 W				10
662C	Long Comp							Th Ar Echelle	300sec	196
728S	HD 8890	01 22.6	1900 +88 46	20 43 38	21 17 11	E				13
794S	"	"	"	21 20 29	22 13 18	E	+89 09			40
860S	"	"	"	22 17 36	22 47 35	04 20 E				20
926S	Flat				22 52				20 sec	
992S	"			22 53	22 54				30sec	43
1058C	Long Comp			22 55					300	180
D	Long Dark	after topping up ≈ 23 25			-10,800 secs					

Spectr. Temp. ..... Dome Temp./Hum. 57F / 62% Transparency Conditions thin cloud coming

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 50F / 86% (Slit H = 650μ) Humidity when Rm = 50%

During Relevant Exp

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Int PCS cnts A/B	Quality
						Echelle Ref	600, 4330	50μ	5500 Å					
														49
Th Ar Echelle	120						600,	50μ	5500Å	187 Ref				3680
Tung A=1/2	30sec	59												487
		75	?	0	K2III						(std vel + std spectrum)		30/45	Red hump 1078
Tung Clear	50sec	197									(Exp meter balanced)		0/0	1925
		10*	soso OK	4	F0p	(Thought it would have been str ??)					Hsm Sp-KK	T=-2.600	48/77	red hump 145
Th Ar Echelle	30sec	146									noise at Red end too		22/49	9190
		13	soso poor	2	F				Wk but OK		Asm Sp-KK	T=-2.684	20/44	254
		40	poor	"	"				Looks OK		"	T=-2.703	107/163	607
		20	poor-Fair	"	"	Dec guided "Manually" ie no electrics					RA manual too		0/1	292
	20sec												0/0	338
	30sec	43											0/0	484
	300	180										while closing	33/48	9179

103

Echello positional Stability tests

Date Mon/Tues Sept. 19/20/88 Observers T.A.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
332	Comp before Toppup			≈ 18 35	≈ 18 57			Th-Ar Echelle	120sec
398	Comp while ~~[illegible]~~ toppup thawing			19 0223				"	120
464	Comp after nossel Removed			1908				"	120
530	Comp Later on			1918				"	~~120~~
596	" " "			2216				"	120
	Comp just before toppup			00 3021				"	120
	Comp just after toppup ~~during~~			004025		(during thaw up of nosse		"	120
	Comp just after removing nosse (from dewar			00 4529				Th Ar	120
	Long Dark [nothing touched]			004824					7200
Continuation Sept 20/21 Same tests but with cold box fan running									
332D	Long Dark 1h. during afternoon								1hr
398	Comp before topp up			18 40	18 42			Th Ar Echelle	120sec
464	Comp after toppup (waiting for thaw)			18 51				"	120sec
530	" " "			18 58				"	120sec
596	Comp Later			19 3735				"	120
662	" "			20 26					120

Spectr. Temp. ..... Dome Temp./Hum. ..... 100% outside Transparency Conditions ... Foggy night - Raining 104

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Wm Rm Humidity = 72% ~~[illegible]~~

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Th-Ar Echelle	120sec											T=-1.979	4047
"	120	Topped up very smoothly to avoid vibration of Echelle for these tests.										T=-2.143 → -2.226	4090
"	120											T=-2.269 → -2.279	4098
"	120	(Note I always did "4 Bs" ie start pulses before each integration)										T=-2.279	
"	120											T=-2.334	
"	120											T=-2.370	4099
of these	120											T=-2.423 → -2.434	4143
Th Ar	120											T=-2.430 → -2.421	4032
	7200												
		Warm Rm Humidity = 52%											
	1hr												40
Th Ar Echelle	120sec											T=-2.553	4201
"	120sec	~~124~~										T=-2.800 → -2.978	4173
"	120sec	40										T=-3.098 → -3.219	4246
"	120	40										T=-3.501 → -3.530	4311
	120	46										T=-3.769 → -3.772	4333

105 Continuat'n of Positional Stability Tests of Echelle Ret,

Date Sept. 20/21/88 Observers T.H. Tues-Wed

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mir.
728D	Long Dark	1 hour		20 1538						
794	Comp			21 47 46				TH H. Echelle	120	81
860	Comp-Repeat of previous			21 5150					120	56, 53
926				922					120	55
	Dark	1hr		22 2838						
	Comp before toppup			23 3114					120	55
	Comp while tube thawing			23 4312					120	42
	Comp after toppup			23 57					120	45
	Comp			00 11					120	42
	Long Dark	9hrs		00 15						

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
			Nothing touched in instr. Rm, (Lights out in dome)									T= -3.881 → -3.873, → -3.874	57
THH Eccle	120	81	← note xpos. cnts (maybe nothing)								Picket fence (kept)	T= -3.873 → -3.874	4804
			Note - I was printing something from MKIII upon Readout & during integrtn										
	120	56	; 53 cnts on next test; (printing out during Readout didn't affect anything here.									T= -3.876	4199
	120	55										T= ≈ -3.888	
												T = -3.905 @ end	48
	120	55										T -3.905 → -3.903	4281
	120	42										T= -3.944 -3.947	4435
	120	45										T= -3.927 → -3.904	4368
	120	42										T= -3.651 → 3.620	4414
												T= -3.	

107

Echelle Set Tests, Positional Stability
new wavelength region
λ 5390 Å

Date Wed-Thurs Sept. 21-22/88 Observers T.M.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
? DARK 266D (Afternoon Integration)										
	Comp before top-up			18 45 15				TH A' Echelle	240	105
	Comp while pipe thaws			19 03				"	240	130
	" after pipe removed			1909				"	248	113
	Dark (nothing touched)			1922	20 22	Picket fence stuff		—		4
	Comp			2024					240	133
	Dark (nothing touched, but desk lamp on)			20 35					1800	0
	Comp			21 3135					240	0
	Comp			220231					240	.
	Comp			22 30					240	152
	Comp			23 40					240	100
	Comp			00 2055	00 25				240	107
	Comp ~~before Top up~~			01 28		not kept.			240	120
	Comp after partial top up.			01 48					248	277

Spectr. Temp. ..... Dome Temp./Hum. 60°F / 84% Transparency Conditions ..... Cloudy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Warm Room Humidity = 48%

Echelle Temp T = -3.253 when coming in @ 18:30 EST

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						Echelle Ret	600, X tilt 1440	50μ	5390A			hump Red and	36
TH A Echelle	240	105										T -3.258	1671
"	240	130										-3.507 → -3.638	1667
"	240	113										-3.649 → -3.585	1646
Q –		4		(2/2 accumulated PCS exp meter)					(many G trays before red)			-3.553 → -3.300	61
	240	123										-3.280 - -3.276	1734
	1800	0		(3/2 accumulated)					(HV overload went ??)			-3.274	40
	240	0		(1/2 accumulate)					(Reset same)			-3.246 - -3.250	1700
	240											-3.237 → -3.237	1773
	240	152										-3.239 - 3.234	1786
	240	100										-3.249 → 3.248	1754
	240	101										-3.257 → 3.256	1784
	240	120		(I walked in to start top up & turned light on before finish)								-3.312 → 3.536	Picket
	245	277				I guess it's warming up fast →						-5.440 → -5.550	1774

109 Thurs - Fri More Pos Stab tests

Date Sept. 22/23/88 Observers T.M.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
2L	Prob nothing -									
68 D	DARK			17 2522						
134 S	FLAT (Spect Contr)			1755	1758			Tung H=1/2	≈30sec	67
200 C	Comp (before top up)			1759				Echelle	240	117
~~200~~	Restart with Echelle, Rather than Echellex.							Th A Echelle		
266 C	Comp (before top up)								240	
332 C	Comp (during hose thawing)			18 3422					240	
398 C	" (after hose removed)			1840					240	
464 D	Dark			1846					1800	
530 C	Comp			19 1728					240	
596 D	DARK (dest lamp off)			1927					1800	
662 C	Comp			21 07					240	
728 C	Comp (Fan turned off before)			21 1253					240	138
794 C	Comp			21 37					240	
860 D	DARK			21 46					1800	

Spectr. Temp. ..... Dome Temp./Hum. 63°F / 89% outside dome (H = 53% in Run) Transparency Conditions Cloudy again 110

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Echelle Tilt = 1.84 → H = 650

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst. X Grating	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
										Cold box fan on for 1st part of night. Will indicate where I turn it off.			
Tungs A=1/2	30s	67				.4	600, 5390	50μ	5390	1.872 Ref			673
Echelle	240	117										T = -1.284	1334
Th A Echelle													
	240											T = -1.280 -1.275	1793
	240											T = -1.642 → -1.636	1411
	240											T = -1.628 → -1.588	
	1800							(Looks noisy?)				T = -1.577 T = -1.384	49
	540											T = -1.382 → T -1.358	
	1800											T = -1.342	
	540											T = -1.256 → -1.257	1410
	240	138										-1.259 → -1.262	1371
	240											-1.266 → -1.263	1572
	1800											-1.262 - -1.261	24

III #2 Cont

Date Sep. 22/23 Observers T.H.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
926C	Comp			22 20				Th A Pzollo	240
992C	"			22 36					240
1058D	Dark			22 43					1200
1124C	Comp			23 10					240
1190C	Comp (before top up)			23 2443					240
not kept C	Comp (during pipe thru)			23 3617					240
1256C	Comp (after top up)			23 4228					240
D	Long Dark			23 50					7200

Spectr. Temp
Focus
Spectr. Temp
Exp. Mtr.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Th A Pickle	240											T=-1.261	1467
	240											T=-1.256 - -1.253	1488
	120											T=-1.253	20
	240											T=-1.252	1421
	240											T=-1.253 -1.251	1379
	240											T=-1.459 -1.780	Picket fence
	240											T=-1.800 -1.972	1391
	120											T=-2.099	

Fri - Sat

Echelle Ret Obs (200μ Fiberfeed)

Date Sept. 23/24/88.. Observers K.K.-Tn.....

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
2									
68									
134C	Comp from	Echelle		183852				Th-A	240
200S	Comp (from	Sp Controller)		1851				FeNe Clear	120
266S	B CON BOR HD137909	15 27.3 1986	+29 09	185822	20 00 7	W			
332S	Comp (							FeNe Clear	120
S	HD 8890	01 ~~28~~ 22.6 1900	+88 46	2016	2059	E			
S	Comp			2101	2103				120
S	HD 8890	01 22.6	+88 46	2105	22 ~~0~~ 05	0437E			
S	Comp			22 ~~0~~ 06				FeNe Clear	120
S	HD 3712	00 40.0 1989	+56 29	2211	2251	0157E			
	Comp							FeNe Clear	120
Fm00010611N	HD3712	Seeing test		[Fiber head view)		0150E	+56 29		31x31
S	Flat (Spect Cont) ×4			2307				Tung Clear	10sec diffused
Fm00010711	MARS			2325					
	DARK ×2			2349	(0024 start HQ)				1800

Spectr. Temp
Focus.....
Spectr. Temp.

Exp. Mtr. | Sc

Spectr. Temp. ..... Dome Temp./Hum. +63°F/60% Transparency Conditions .. Clear 114

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +54°F/90% Echelle 1·84

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst. λ Grating	Grating/ Tilt	Slit	Emulsion λ	P.H.	Program	Remarks	Quality
						·4440	600, 5390	50μ	5390Å				
Th-A	240											T=-3.314	
FeNe Clear	120											T=-3.404 (Top up before)	
			poor	4	Fop	FM00010b.TN	Frame 1	XFWHM 2.914376	YFWHM 3.057774		Asm Sp-KK	T=-3.416 (Red hump)	184
FeNe Clear	120						2	2.086939	3.082360			T=-3.326	
							3	3.165901	2.657838				
			poor	2	F		4	3.381582	3.570865		Asm Sp KK		319
	120												
				2	F						Asm Sp KK	T=-3.316	402
FeNe Clear	120												
			poor	2.5	KO							T=-3.302	
FeNe Clear	120											T=-3.306	
		31×31 (diffuser in)	(Note)	Box	was	dbld's	resultant	frames	looked	like	partial	oversaturatn.	
Tung Clear	1150											T=-3.300	
	1800											T=-3.303	38/70

Mon-Tues

More Ref Pos Stability tests.

Date Sept 26-27/86.. Observers J.n.....

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
2L	Null Flat from Echelle								
	Flats (spect Contr) x4			19 29					10 sec
	Comp (echelle source) (before top up)			19 3420			Echelle →	TH 14 ~~Clear~~	240
	DARK			19 41 23		Cap put in place	Fiber feed		1200
	Comp (echelle source) (just before top up)			20 03 41					240
	Comp (white pipe thars)			20 12 40					240
	Comp after Top up completed			20 18 05					240
	DARK			2025					1800
	Comp			21 13					240
	"			21 37 26					240
	DARK			21 40					1800
	Comp			22 35					240
	Comp			23 21					240
	Comp (before top up)			23 56					240
	" after top up			00 15					240

Spectr. Temp.
Focus.....
Spectr. Temp.

Exp. Mtr.	Se
20 each	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions Cloudy - Rain 116

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... H in warm Room = 50%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst. x grating	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						1.84	600, 5390	650H 50μ	5390Å	1372 Ref			
	Nse	~70 each				.4440							~ 33 each
Th A	240										T=-2.430		1721
	1200										T=-2.432		27
	240										T=-2.449		1828
	240										T=-2.518	T=-2.577	1541
	240										T=-2.580		1600
	1800										T=-2.544	→ T=-2.296	63
	240										T=-2.283	T=-2.269	1660
	240										T=-2.231	→ T=-2.223	1514
	1800										T=-2.223	T=-2.206	32
	240										T=-2.208		1591
	240										T=-2.209	T=-2.211	1698
	240										T=-2.213	-2.213	1627
	240										T=-2.300	-2.293	1652

Wed-Thurs

Date Sept. 28-29/86 Observers Tn

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Spectr. Temp.
2L	Echelle Flat (Dummy)										
(66, 134, 200, 266) S	Flats x4	[Spect Contr source		18 17	18 26			Tung Clear	10 sec	358pa	
332C	Comp (while top up pipe thows)			18 28				Th Ar Echelle	240		
398S	HD137909	15 27.3	1986 +2909	18 40 15	20 02	04 50 W	+2909				
464C	Comp			20 04 32					240		
530S	Vega	18 36.5	1989 +38 46	20 19 29	20 57	02 30 W				132	
596C	Comp			20 54 40					240		
662S	Comp FeNe [Spect Controller]			21 03				FeNe Clear	240		
	Pol HD8890	01 29.6	+88 46	21 15 14	22 13 09	04 05 E				65	
	Comp FeNe [spect contr]		Diffuser IN	22 17					120		
	Comp ThAr [echelle]			22 24					240	24	
	" " "			22 35		No noise seen on PCS		Exposer	240	290	
	" " Repeat of Previous.			22 42					240	307	
	DARK			23 06					1800		
	LONG DARK after top up			23 52					3600		

Spectr. Temp. ..... Dome Temp./Hum. 53°F / 70% Transparency Conditions Clear 118

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 44°F / 95%

* CCD image poor again (partial saturtn effect)

Warm Room H = 45%

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst. X Grating	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
				1.84	600, 5390	650 H 50μ	5390Å	Ret 1872	..	~~Diffu~~	
358 per									Diffuser IN	298, 313, 309, 213	
Exp meter Balanced	*										1666
	50-50	4	Fop	(PCS counter ≈ 150 cnts/channel)					Asm Sp-kk	T=-2.627 ½ Pickett Fence	
											1765
132		0	HOVa						Obs Pgm	T=-2487 OK	923
										T=-2489	1636
				Diffuser IN [Should have been OUT]						T=-2491	755
65		2	F						Asm-Sp-kk	T=-2497 (Red bump)	206
										T=-2498	2172
24					(while closing)					T=-2494	1616
290	(Very ODD one)?				(after Gen off and closed)					T=-2.495 ODD	6077
307										T=-2.498 OK	1748
	Odd like the other one.									T=-2.497	1983

Comparison Type/Filter	Exp.
Tung Clear	120
Th Ar Fabry	240
	240
	240
FeNe Clear	240
	120
	240
Expander	240
	240
	1800
	3600

119.

Thurs - Fri

Echelle Ret with 200μ Fiber.

Date Sept. 29-30, 188.. Observers Th

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
2L	Tungsten Halide [echelle source]									
68C	Comp							Th A. Echelle		
S	Flats (4)	Spect controller		1817	1825			Tung	≈ 30sec	~~10~~ sec
398 S	Comp (Spect Controller)			1835		After top up			240	0
464 S	Vega	18 365 1989	+38 46	1844	1910	0053W	+			36
~~S~~	~~Comp (Spect~~ Contr)			1911				FeNe clear	~~FeN~~ 240	0
530 S	Repeat			1917	1927			"	"	0
596 S	HD 8890	01 22.6 1900	+88 46	1927	2053	0523 E	+89 11			0
~~S~~	~~Comp~~ (during setup)			2054	2059	(Causes too much noise)			240	0
662 S	Comp Repeat			2059				FeNe	240	
S	HD 3712	00 40 1989	+56 30	2106	2206	0220E				0
S	Comp			2208	2218				~~240~~	
S	Flats x2 (Spect Contr)			2220	2222			Tung	30 secs	140
C	Comp (Echelle)							Th-A	240	
D	DARK (Long) 2hrs. Dark Slide closed								~~3600~~	(1st

Spectr. Temp. ..... Dome Temp./Hum. 55F/80% Transparency Conditions ... thin cloud & haze ... 120

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 58F/95% Warm Room H=46%

Echelle tilt = 1.84

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst. x tilt	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						.4440 ~~1.84~~	600, 5390	650H 50μ	5390Å	1872 Ret			
ThA Eleke													2324
Tung	≈30sec	100 each										DIFFUSER IN 380, 474, 468, 342	
	240	0										Diffuser IN	716
		36	ok	0	A0Vp								919
FeNe clear	~~FeN~~ 240	0										1/2 picket fence	-
"	"	0											803
		0	soso	2	F	(40-60 counts on PCS during exp) noise info					Asm Sp-KK	"getting cloudier (Red bump)	504
e)	240	0									Same ODP	(not picket fence) reported Inst night	
FeNe	240												774
		0	ok	2.5	F0						stdvel	Cloud OK	318
	~~240~~											-2.751	748
Tung	30sec	140										891, 692	
Th-A	240											T=-2.751	1840
	~~240~~	(1st 1/2 hr dark did a picket fence)											

Emulsion Batches: .....

Date Sept. 30/~~31~~/88 Fri-Sat Oct 1 Observers T.n.-kk

PRIMARY very fogged up. Dome inside very wet & cool

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
2L	First Flat Tung ~~Halide~~ [Spect Control Source]							Tung Clear	15	
58,134,200S	Flats x 3	[Spect Contr		18 23				n	15 per	≈200 per
266S	Comp	n n]		18 ~~45~~	18 ~~40~~ head			FeNe Clear	240	0
332S	Comp	n n		18 51	18 52			"	40	9
not kept.	Comp Echelle source			18 53 30					240	
398C	Comp Echelle Source								240	
464D	DARK			19 26					1800	
530S	Comp			21 03				Th-A	240	
596S	Comp Spect Contr							FeNe	40	
	HD 8890	01 27.6	1900 +88 46	21 29 18	22 33 41	0338 E.	+ n			0
FM00108	Polaris B	Seeing test		22 22			(8) Frames			23x23
	Comp							FeNe Clear	40	Diffuser
3x	Flat	[Spect Contr] x3		22 35	FM000108.TN			Tung A=1/2	15	Diffuser
	Comp							Th A	240	

Frame	XFWHM	YFWHM
1	2".814914	1".448632
2	2".451812	2".161431
3	2".431402	1".556345
4	2".387734	1".848654
5	2".890406	1".565746
6	2".579868	1".796458
7	2".627827	1".712170

Spectr. Temp. ..... Dome Temp./Hum. +62°F/80% Transparency Conditions Hazy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +65°F 10%

Echelle Tilt = 1.84
X Tilt = 0.4440 ~~Diffuser IN for Spectr Controle~~

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung Clear	15					Echelle Ref	600, 5390	650H 50W	5390Å	1872 Ref			1378
"	15 per	≈200 per	Note - Diffuser IN for Flats, OUT for FeNe comps.									1269, 895, 1254	
FeNe Clear	240	0				Diffuser ~~OUT~~ IN for this one though							1978
"	40	9				Diffuser OUT							2672
	240	(It was unplugged at echelle)										T=-2526 noisy	45
	240											T=-2400 ok [Red Hump]	35
	180											T=-2.433	
Th-A	240											T=-2.421	
FeNe	40											T=-2427	2103
		0	OK	2	F	Echelle Ref	600, 5390	H=650u W=50u	PCS lines 15/29		Asm Sp Kit	T=-2.429 OK	650
		23x23	Int x6				(5 Random + 3 selected in this order)						
FeNe Clear	40	Diffuser OUT										T=-2.442	1757
Tung A-1/2	15	Diffuser IN.										600, 597, 597	~~600~~
Nit	240												

PCS again, after long absence

Mon Tues

Date . Oct. 3-4/86 ..... Observers ... Tu / Mki-Tu ..... PS2 Time 2 min 50 secs behind Astro Clock

Emulsion Batches: .....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T. PS2 fine	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1284	FLAT - During Day						ND in	Tung	
1285	Fe-Ar				1844		ND out	Fe Ar Clear	40+160
not written	HD 171232	18 32.2 1986	+25 29	18 52	1927	01 24 W	+25 26		1800
1286	"	"	"	19 26	2003	0205 W	"		1800
~~1286~~			(∴ Exp 1852 → 2003)						
1287	Fe-Ar Comp			20 13 28				Fe A Clear	200
1288	BM CASS	00 53.9 1986	+64 01	20 22 44	21 23	E	+63 58		3600
1289	Fe-Ar Comp			21 26 42				Fe Ar Clear	200
1290	BM Cass [Cont of 1st exp of BM]			21 36 37	22 37	01 39 E			3600
1291	Fe-Ar Comp							Fe A Clear	600
1292	Cloudy Sky - TORONTO			22 53		≈0 40 E	-20°		1200
1293	Fe Ar	1989						Fe A Clear	200
1294	HD 8979	01 25.9	-00 27	23 31	23 46	0059 E	-00 26	Halted	1800
1295	Fe A Comp			23 54				Fe A Clear	200
1296-IN	Flat ~~on timer~~			00 08	01	Density = [2.3 unlabelled] ND in gun barrel.		Tung A 1/4	3600

Spectr. Temp
Focus.....
Spectr. Temp

Exp. Mtr. A/B	
Tops 180/8	
100 on top	
180/8	
10/8	
170/12	
70/7	
160/11	
210 on top	
30/9	
170/10	
3300	

Spectr. Temp. ..... Dome Temp./Hum. +48°F / 60% Transparency Conditions: Some cloud in South

Focus .....

Humidity in wn Rm = 48%

Spectr. Temp. ..... Dome Temp./Hum. +40°F / 90%

Note. For Comps and Tung Flats, Diffuser was in.

Astro Clock

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A / B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung						200μ fiber-fed PCS	1800/62°	BS	Hα	IB			
FeAr Clear	40+60								Hα	IB			
	1800	Tops 180/8	SOSO	7.73	G8II	200μ fiber PCS			Hα	IA	std vel	PFR Temp = 36.5 KA Chiller @ -07.0°C Field 7	
	* 1800	(100 cnts typical) Added to previous. Previous obs not written (1800+1620 secs)											
		(Dark (shutter closed) ≈ 5 cnts/channel)											
FeA Clear	200	180/8	SOSO ~~POR~~	~9 ~~Em~~					Hα	IB			
	300	40/8	SOSO	≈9	Em	200μ fiber-fed PCS	1400/62°	BS	Hα	IA	Obs pgm	written	
FeAr Clear	200	170/12				"	"	"	"	IB			
	300	70/7	[Better Focus now]			"	"	"	"	IA	Obs pgm	Some cloud [added to 1st exp]	
FeA Clear	600	160/11				"	"	"	"	IB			
	1200	≥10 cnts 1.70 cnts ~~Sky then 10 cnts~~	Dark (shutter closed) gives ≤10 cnts per channel							IB			
FeA Clear	200									IB			
Halted	1800	300/9	POOR	6.41	gK0	PCS	1800/62°	BS	Hα	IA	std vel	Halted by Cloud	
FeA Clear	200	170/10								IB			
Tung A/4	3600	3300								IA			

Tues-Wed

Date Oct 4/5/88 Observers Tn

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
1303	Flat			15 10 36	16 10 38					
1304	Comp for maps			19 15			ND +	[FeNe Clear]	200	470/17
not written	" ~~6305 Å~~			19 22			"	"	200	400/15
1305	" 5140 A			19 53			No ND	FeNe A=1/4	200	261/11
1306	" ~~5092 Å~~			20 02			No ND	FeNe A=1/4	200	590/24
1307	" 5643 Å			20 09			"	"	200	400/40
1308	" 5892.514			20 16			ND	FeNe Clear	400	180/10
1309	" 6139.893			20 27			ND	FeNe Clear	200	400/12
not written	" 6628.963			20 35			ND	FeNe Clear	200	420/14
1310	5392.45 Å			20 44			No ND	FeA ~~Clear~~	200	2201/12
	Attemp to Red ⊕ 1200/48 g stepping from 43° -> 48° bombed Fiber Controll pgm									
1311								FeNe	100	
1312								FeNe	100	
1313	Sky									

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Tilt Set WARM Run H = 43°

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
									λ From tilt controle				
						200u fiber PCS	1200/48°	BS	6628963 Hα	480		Chiller Temp. = -00.9 °C	
FeNe Clear	200	470/17					1200/47°		6385.8	470	IA	written	
"	200	400/15					1200/47.5°		6507.43	475	IB	not written	
FeNe H-1/4	200	260/11					1200/42°		5139.916	420	IB	written	
FeNe H-1/4	200	590/24					1200/43°		5392.45	430	IB	written	
"	200	400/40					1200/44°		5643.343	440	IB	written	
FeNe Clear	400	180/10					1200/45°		5892.514	450	IB	written	
FeNe Clear	200	400/12					1200/46		6139.893	460	IB	written	
FeNe Clear	200	420/14					1200/48°		6628.963	480	IB	not written (done by KK)	
FeA	200	220/12	H = 1/2				1200/43°		5392.45	420	IA	written	
		every error										plotted but not written	
FeNe	100						1200/49		6871				
FeNe	100						200/47.9		6605				
							1200/47.9						

Wed- Thurs

Date Oct 5-6/88 Observers T.n.

Emulsion Batches:

Diffuser IN for All

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mir. A/B
14	FLAT	during Day		15 2221	16 2221		ND in	TUNG H=1/8	3600	
15	Comp 6500			18 2928			ND out	FeA clear	600	400/77
~~not written~~ 16	Comp 5013			~~18 5947~~			"	"	600	100/18
17	Comp 5140			1921			"	"	600	100/20
18	Comp 5392Å			1932			ND out	FeA A=1/2	600	330/15
19	Comp @ 5643Å	written		194630			"	"	"	200/10
~~20~~	Comp 5892 Å	not written		1958			"	FeA Clear	"	300/15
not ~~120~~ written	6140 Å	written		2010			"	"	"	500/10
21	6385Å			2023			"	"	"	400/15
22	6629Å			2034			"	"	"	400/40
1323	6750 Å			2045			"	"	"	520/80

Note - Sept 89 Comp 5892Å not written, but header info was written mistakenly into Comp 6140Å Record.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ... Cloudy 128

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Chiller T = -0100 °C

Exp. Mtr. A/B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion Å	~~P.H.~~ Buffer	Program Grating Angle Å	Remarks	Quality
				800μ fiber PCS	1200/48.2	BS	6500Å	IA	Cont 6677.436	Set 48.2 written	
400/77				"	"	"	"	IA	"	~~Set~~ written	
600/18				"	1200/415	"	5013Å	IA		~~written~~ ~~no~~	
640/20			8	"	1200/420	"	5140Å	IB	5139.916	written	
330/15			10		1200/430	"	5392	IA	5392.45	written	
200/10			12		1200/440	"	5643	IB	5643.343	written Chiller T = -01.0 °C	
300/15			~~14~~		1200/450	"		IA	5892.514	~~written~~	
500/10			14		1200/460			IB	6139.893	~~written~~ written	
400/15			16		1200/470			IA	6385.4 sp 3	written	
400/40			18		1200/480			IB	6628.963	written	
520/80					1200/485			IA	6749.992	written	

Thurs / Fri

Note PS2: Shed Time behind Astro by exactly 3 min

Date Oct 6/7/88 Observers TN

Emulsion Batches:

Diffuser in too

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T. PS2 Times	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1324	FLAT			18 23	19 23		ND in	Tung H=1/8	3600	2 202	
1325	FeNe Comp (Long)	19845		194815			ND in	FeNe Clear	600	360	10
1326	HD171232	18 32.2	+25 29	200629	203632	02 58W	+25 26		1800	500	10
1327	FeNe Comp (Long) while clearing sky			20 38	20 48		ND in	FeNe Clear	600	380	12
1328	FLAT H2			21 00			ND in	Tung H=1/8	3600	2000	50
	I may have written HD171232 twice, just to make sure. Yes I did & deleted										
1330.TN	Long DARK	shutter closed		00 1212					7200	3/1	
1331.TN	Flat (during afternoon)			Oct 7/88. written @ 6 PM		No Observing, Thunderstorm					

Spectr. Temp
Focus
Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. ~~14.5~~/80% Transparency Conditions . Part cloudy - Cloudy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Warm Rm H= 40%

130

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion λ	P.H.	Program	Remarks	Quality
Tung A=1/8	3600	2000					200μ fiber PCS	1200/48°1	BS	6600Å	IB		Chiller T= -01.0°C	
FeNe Clear	600	360	10								IB			
	1800	500	10	ok	V= 7.73	G8III					IA	Std Vel	Some cloud, (plot done)	
FeNe Clear	600	380	12								IB		(plot done)	
Tung A=1/8	3600	2000	50								IB			
Nd: deleted														
	7200	3/1									IB			
storm														

131

Wed-Thurs

PCS with 200μ Fiber

Emulsion Batches:

Date Oct. 12/13/88 Observers T.M.

Reset PS2 times & Date

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1333	Flat by KK before Sundown										
1334	HD224085 BD +27 4649	23 49.9	+28 06	22 20	22 50	0007 W	+2831		1800	400	25
1335	"	"	"	22 5430	23 2436	W	"		1800	450	25
1336	Fe Ne Comp			23 26					420	350	24
SP001337.TM	FLAT at End			2339	0039				3600	1780	70
1338	Flat in ch B for test										
1339	FeNe Comp										
1340	Sky spectrum							Full ND	1200	1400	
1341	FeA Comp (preferred)							Full none	120		
1342	Simulator output										
1343	Flat			15:52	16 52			1/8 ND	3600		

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. +33°F / 92% Transparency Conditions semi-clear

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +31°F / 98%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
											1B		written	
	1800	400	25	Poor	V-7275	K2e	PCS	1200/482	BS	6600Å	1A	Rci	written same cloud [cnts as high as 550]	
	1800	450	25	"	"	"	"	"	"	"	1A*	*Continuation	of 1st exp II Peg	
	420	350	24				"	"	"	"	1B			
	360	1780	70				"	"	"	"	1A		written	
											B			
											A			
Full ND	1200	400				G2V					A			
Full none	120										A			
											A		written	
V8 ND	3600													

133 Thurs - Fri

Date Oct. 13/14 Observers TN

Emulsion Batches:

PS2 Time check with Astr Clock

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
S001343.TN	~~Fla~~ Flat -	Previous	Page						
1344	Fe-A			1807			No ND	Fe-A Clear	120
1345	HD171232	18 32.2	1989.5 +25 29	18 18 22		0130 W	+		1800
1346	Fe-A							Fe-A clear	120
1347	HD 173740 B	18 42.4	1988.6 +59 36.9	18 57	19 57	W	+59 31		360
1348	Fe-A						No ND	Fe-A clear	120
1349	HD 173740 A	18 42.4	+59 36.9	20 02 22	Resumed 20 ~~14~~ 35	0305 W	+59 32		180
1350	Fe-A				20 39			Fe-A clear	200
1351	HD 224085	23 49.9	1900 +28 06	21 ~~26~~	21 56	0 44 E	+28 29		1800
1352	Fe-A								120 ~~1200~~
1353	HD 6314	01 04.6	2000 +39 59	22 03	22 23	01 26 E			1200
1354	Fe-A				22 27 32				
1355	Flat at end				22 30 33		NP in	Tung H-1/8	3600

Tried to Place Fiber Feed Cap in place, where is it?

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mtr. 4	8	Se
470	85	
800	20	
470	88	
180	10	F
800	75	
300	5	
350	16	
750	20	
1950	60	

Spectr. Temp. ..... Dome Temp./Hum. 37°F / 60% Transparency Conditions Semi clear - Cloudy 134

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 32°F / 85%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe-A Clear	120	770	85				PCS		BS		IA		written	
	180	300	20	OK	V= 7.73	G8III					IA	std vel	cnts as high as 1000	230
Fe-A clear	120	470	88								IB			
	360	180	10	Fine	V= 9.69	dM5	[South and Fainter star of pair]				IA	Kk pgm	[cnts 250 as high as ~~200~~ of pair] Faint and	150
Fe-A clear	120	500	75								IB			
	180	300	5	OK	V= 8.90	dM4	(North, Brighter of pair)				IB	Kk pgm	cloud Halted @ 2014	90
Fe-A clear	200										IA		Cloud for a while	
	1800	~~550~~	16	OK	V= 7.2 → 7.5	K2e					IA	Rci pgm	as high as 750 cnts	250
	129 ~~500~~	~~750~~									IB			
	1200	750	20	OK	V= 6.57	FOVn* K2n	(as high @ 1000 cnts)				IA	Telluric?	Cloud (thin)	250
											IB			
Tung Halo	3600	950	60								IA	Chilla T still -01.0°C		
												PFR T reads 375uA		
									Doesn't this Flat look odd?:					
						* BS Cat. A[illegible] ed.								

Fri - Sat

Date Oct 14/15 1988 Observers T.n./MF FORD + Mki

Emulsion Batches: .....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1356	1st Flat										
1357	1st Long FeA						No ND	FeA Clear	300		
SP 1358 mki	HD 171232	18 32.2 (1989.5)	+25 29	18 50 56	19 11	01 58 W			1200	800	20
	FeA			19 29 20					300	500	90
	FeA			20 13 14					300	600	95
	HD 212280	22 22 (1989)	+30 18	20 32 34	21 03				180	500	10
1362 mki	" #2			21 07 36	21 37	00 35 E		+	1800	400	15
1363	FeA						No ND	FeA Clear	300	510	80
64	HD 224085	23 49.9 (1900)	+28 06	21 48 21					1800	700	16
SP 01366	~~HD 213389~~	~~22 29.7~~ (1989)	~~+49 18~~	~~22 27 31~~	Fe-A				120		
1367	HD 213389	22 29.7	+49 18	22 35					1200	190	40
[1368 mki]	Fe-A								120		
1369	BM Cass	00 53.9 (1989)	+64 01	23 03					1800	200	8
1370	Fe-A			23 35					300	500	90
1371	BM Cass	"	"	23 43					1800		

Spectr. Temp.
Focus.....
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. 40°F/60% Transparency Conditions Sl hazy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ...../.....

Large Class Tours Looked at MARS with CCD Pg; John Lester, Rg.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
							PCS ~~1200/4812~~	1200/4812	BS					
FeA Clear	300													
	1200	300	20	Fine	V= 7.73	G8III		1200/4812		6600A	IA	stellvel	as high as 1100 cnts	
	300	500	90					"		"	"	"		
	300	500	95					"		"	IA	Note SR & GR written incorrectly		
	180	500	10	Fine	V= 7.5	F1 G5IV		"		"	IA	Mki pgm	some cloud	
+	1800	400	15	"	"	"		"		"	IA		more cloud continuation of 1st exp	
FeA Clear	300	510	80					"		"	IB		"	
	180	700	16	OK	V= 7.5	K2e		"		"	IB	Rci pgm	cloudy thinly	
	120										IA		[Empty one written 1st Then deleted]	
	1200	1900	40	Fine	V= 6.4	K2III					~~IA~~	Mki		
	120										IB			
	180	200	8	OK	≈9	~~B~~					IA	Obs pgm	some thin cloud	
	300	500	90								IB			
	180	"									IA			

137 #2

Date Fri.-Sat. Cont. Observers /mki. Tn. + MF

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
SP001372.mki	Fe-A after Bm Cass							No ND	Fe-A Clear
1373	HD 216489	22 52.5	1988 +16 47	00 21		W			1200
1374	Fe-A								300
75	HD 218153	23 04.9	1988 +25 57	00 49		W			1800
76	Fe-A								300
77*	HD 2240 85 II Peg	23 53.9	1988 +28 29	01 26		W			1800
78	Fe-A								300
79	HD 223460	23 49.1	1989 +36 22	02 05					1200
80	Fe-A								300
81	HD ?	02 25.0	1989 +29 09	02 39	02 52	01 48 W	+29 09		(800)
82	Fe-A								120
83	HD 12929	02 24.8	1989 +29 50	03 03			~~+29~~		1800
84	FeA								
85	HD 32963	05 07.2	1989 +26 19	03 42	04 12				1800
1386	Fe-A			04 13					300

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ...hazy.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.
No ND	Fe-A Clear
	1200
	300
	1800
	300
	1800
	300
	1200
	300
	(800)
	120
	1800
	1800
	300

Exp. Mtr. 4 B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
2000 25	Vfine	V= 5.6	K1.5	PCS	1200/482	BS	6600Å	IA	Mki pgm		
								IB			
600 15	fine	V= 7.6	G8III					IA	Mki pgm	as high as 800 cnts	
								IB.			
800 22	fine	V= 7.2 - 7.5	K2e	*[forgot to change title from Fe-A]				IA	Rci pgm	as high as 950 cnts	
								IB			
3300 88	V fine	V 5.9	G1IIIe					IA	Mki pgm	as high as 3700 cnts	
								IB			
2000 40	Fine							IA			
								IB			
1600 40	V fine	V 7.67	K3III					IA	std vel		
								IB			
800 20	V fine	V= 7.72	G2V					IA	std vel		
								IB			

139

#3

Date Sat. Oct. 15 Observers .....

Emulsion Batches:

Plate No.	Object ??	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1387	HD 65583	07496	+2915	0435	0505	E	+2911		1800	900	30
1388	Last Fe-A						No ND	Fe-A Clear		580	80
1389	Last Long Flat @ end		On timer	0533					10,800	2,200	65
	~~Fe-A HD 224085~~ ~~Fe-A~~								~~30~~	~~650~~	~~90~~
	~~HD 224085~~	~~23539~~	~~128 29~~	~~21 12~~							

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... 193°/ getting cloudy

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion λ	P.H.	Program	Remarks	Quality
	1800	900	30	Fine	7.00	G8III	PCS	1200/482	BS	6600A	IA	Std Vel	some cloud	
Fe-A Clear		550	80								IB			
	10,800	2,200	65								IA			
	~~30~~	~~550~~	~~90~~								~~IB~~			
											~~IA~~	~~Rci pgm~~		

141

Tues-wed KK Class tour earlier

Date Oct 18/19/88 Observers T.M.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1390	Flat				0323						
1391	Fe-A First		1988.5	20 25 27	20 30 28	~~02 50 E~~	no ND	Fe-A Clear	300	510	75
1392	HD 8779	01 25.9	+-0028	20 32		0250 E	-0029		1800	850	22
1393	Fe-A		1988	~~21 11 38~~				Fe A Clear	300		
94	HD 224085 II Peg	23 53.9	+28 29	21 11 38	21 41 44	0039 E	+28 32		1800	300	10
95	Fe-A		1988						300	500	66
96	HD 224085 #2	23 53.9	+28 29	21 49 13	22 19	00 01 E	+28 32		1800	400	10
97	Fe-A		1989					Fe-A Clear	300	500	60
98	HD 217188	22 58.3	-00 23	22 27	22 57 16	0123 W	-0026		1800	400	15
1399	mki Fe-A		19885				no ND	Fe A Clear	300		
1400	HD 8779	01 25.9	-0028	23 05 26		W	-0029		1800	800	30
1401	Fe-A Last			(23 45)			no ND	Fe A Clear	300		
1402	Long Flat at end (on time) 3 hrs						ND in	Tung A=1/8	2200	2030	60
1403	Dark	Next afternoon							3600		

Spectr. Temp. ..... Dome Temp./Hum. +43°F / 90% Transparency Conditions ... O.K. - cloudy M2

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +38°F / 96%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe-A Clear	300	510	75				PCS	1200/482	BS	6600Å	IB			
	1800	850	22	very poor	V= 6.41	gGO	"	"	"	"	IA	Std vel	cuts to 1100	
Fe-A Clear	300										IB			
	1800	300	10	very poor	V= 7.2-7.5	K2e					IA	Rci pgm	cuts to 550	
	300	500	66								IB			
	1800	400	10	V poor	V= 7.2-7.5	K2e					IA	Rci pgm	Chiller T = -00.9°C	
Fe-A Clear	300	500	60								IB	PFR Temp = 36.5 μA on scale		
	1800	400	15	v poor	V= 7.3	KO III					IA	Mki pgm	Cloudy (partly)	
Fe-A Clear	300										IB			
	1800	800	30	very poor	V= 6.41	gGO					IA	std vel	cuts to 1150 some cloud	
Fe-A Clear	300										IB			
Tung A-1/5	1800	2030	60								IA		WRITTEN	
	3600												written	

Wed - Thurs

Date Oct. 19/20/88 Observers T.n

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1404	Flat 1st			17 23	18 23 26		ND in	Tung A-1/8	3600
	1st Fe-A			18 27			No ND	Fe-A clear	600
	Very Dark	no lights, cap in		21 44	22 44	Shutter closed			3600
	Long Dark 3hrs			23 49					11 800

Spectr. Temp.
Focus
Spectr. Temp

Exp. Mtr. A	Exp. Mtr. B
560	60
520	75
04	(0-4)

Spectr. Temp. ..... Dome Temp./Hum. 47°F / 70% Transparency Conditions Semi-cloudy 144

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

PFR Temp = 36.8 μA on scale

Chiller T = -04.0°C

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Jung A-1/8	3600	2560	60				PCS	1200/48.2°	BS	6600Å	IB	Note, Flat Signal >10% higher than other times		
Fe-4 clear	600	5520	75								IA			
	3600	(0-4)	(0-4)								IA		written	
	11800										IB		written (chB looks ok)	

145

Pg #2

1.65, 0.26 8m 68°F

Date Oct. 20–21, 1988 Observers Fln – Tn

V 1.40, 0.23 *

Emulsion Batches:
IIaO-e I.A.7 Sept 16/88
IIaO-e / A.7 Oct 20/88
no diffuser

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50312	HD 203064	21 14.7	+43 31	18 19	18 35	~1h:00m E	~~No ND~~	FeNe Clear	60 60
50313	"	"	"	18 39	18 56	0h 41m E		"	60 60
50314	"	"	"	19 00	19 19	00 18 E		"	60 60
50315	"	"	"	19 ~~22~~ 24	19 41	00 02 W			60 60
50315T	Spot Calib for 50312–50324			15 min @ 15V		D4 3900	D3 4300	P2 4800	
50316	HD 209975	22 02.1	+61 48	≈19 50	20 08	0h 14m E		FeNe Clear	60 60
50317	"	"	"	20:12	20 30	00 08 W		"	60 60
50318	"	"	"	20:35	20:50	0h 27m W	+62 10	"	60 60
50319	HD 203064	21h 14.7m	+43° 31'	20:58	21:13	1h 36m W		"	60 60
50320	"	"	"	21:17	21:34	1h 57m W		"	60 60
50321	"	"	"	21:39	21 59	2h 24m W	+43 51	"	60 60
50322	HD 24912	3h 52.5	+35 30	22:17	22:30	3h 48m E		"	60 60
50323	"	"	"	22:35	22 47	3h 30m E		"	60 60
50324	"	"	"	22:53	23 05	3h 11m E	+35 42	"	60 60
50325	"	"	"	23:10	23:20	2h 56m E		"	60 60

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mtr. & Filter	S
10,030	
9885	
9900	
8733	
7900	
7822	
8354	
9576	
9091	
~8800	
11001	
12703	
11676	
12375	

Sept 16/88
Oct 20/88
diffuser

Spectr. Temp. 47°F ..... Dome Temp./Hum. 48°F / 58% Transparency Conditions Hazy - cloudy .....

Focus ..... 392 .....

* next Batch of IIaO got 2-3 hrs vacuum

Spectr. Temp. ..... Dome Temp./Hum. ..... / .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe Clear	60 60	10,030	v good OK	4.99	08	BC	G=6430 1200/5°8	BS	IIaO-e	1	O star var	Comp Cats 1800=60secs	
"	60 60	9885	"	"	"	"	" / "	"	"	"	"		✓
"	60 60	9900	"	"	"	"	"	"	"	"	"	more cloudy	✓ OK
	60 60	8733				"	"	"	"	"			OK
P7 4810									"	"			✓ ✓
FeNe Clear	60 60	7900	v good	5.19	09.516	BC	1200/50°8	BS	"	1	O star var		v slwk ✓
"	60 60	7822	OK	"	"	"	"	"	"	1	"		"
"	60 60	8354	v good	"	"	"	"	"	"	1	"		slwk
"	60 60	9576	OK	4.99	08	"	"	"	"	1	O star Var	Focus @ 391 T=44°F	"
"	60 60	9091	OK	"	"	"	"	"	"	1	"		
"	60 60	~8800	OK	"	"	"	"	"	"	1	"		slwk
"	60 60	11000	OK	4.04	07	"	"	"	"	1	"		
"	60 60	12703	.	"	"	"	"	"	"	1	"		v fine
"	60 60	11676		"	"	"	"	"	"	1	"	Focus set to 390 T=42°F	✓ Fine
"	60 60	12375		"	"	"	"	"	*IIaO-e	1	"	Focus set to 393 T=42°F	✓

147

pg #2

Date Oct 20-21 1988 ..... Observers Fln - Tn .....

Emulsion Batches:
* #2 IIa O Butcher (previous page)
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50326	HD 203064	$21^h 14.7^m$	+43° 31'	23 32	23 50	$4^h 14^m$ W	+43 52	FeNe	60
								Clear	60
50327	"	"	"	23 54	$0^h 10^m$	$4^h 34^m$ W	"	"	60
									60
50327T	Spot Calib for	50325-	50327.	15 min @ 15V		D4 3900	D3 4300	D2 4840	
50327F	Focus test					4 40W	Comp posn Stellar posn	FeNe Clear	120 120

Spectr. Temp
Focus.....
Spectr. Temp

Exp. Mir. & filter	
8738	50
793	4
3600	

KK
Date 10s

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum 37°F. / 97%

Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
8738	5050	4.99	08	BC	1200/50.8	BS	*IIaO-e	1	Ostar Var	Some cloud	
793	"	"	"	"	" / "	"	*IIaO-e	1	"	Heavy cloud — exp. aborted.	v wk
							*IIaO-e				v wk
3600				BC	1200/50.8	BS	Old IIaO	1		T = 42°F Set 393	center ~~a~~ sl Red
KK											

Note 10 strips of IIaO Left in vacuum. Much more needed as you can see.

Th

Comparison Type/Filter	Comparison Exp.
FeNe	60
Clear	60
"	60
	60
Fe/Ne	120
Clear	120

149 pg #1

Pev Oct 23 7min @68°f

Emulsion Batches:
1.62, 0.25 IIa-O.e.1A7 Oct 20 '88
1.64, 0.25 IIa-O.e.*1A7 Oct 21 '88

Date 1988 OCT 22/23 Observers B.M.-T.

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mir. B filter
50328	HD 203064	21h 14m.7	+43° 31'	22:39	22:54	3h 26m W	+43° 55'	Fe Ne/ Clear	90-90	7773
50329	HD 203064	21h 14m.7	+43° 31'	22:59	23:14	3h 46m W		Fe Ne/ Clear	90-90	9419
50330	HD 203064	21h 14m.7	+43° 31'	23:19	23:34	4h 06m W		Fe Ne/ Clear	90-90	8428
50331	HD 24912	03h 52m.5	+35° 30'	23:45	23:54	0215 E	+35 42	Fe/Ne Clear	90-90	12900
50332	HD 24912	03 52.5	+35 30	00 00	00 09	0200 E		Fe Ne Clear	90-90	14140
50333	HD 24912	03 52.5	+35 30	00 15	00 24	0145 E		Fe Ne Clear	90-90	15080
50333T	Spot Calh for 50328->50337			15min @15V	D4 3900	D3 4300	D2 4810			
50334	HD 24912	03 52.5	+35 30	00 30	00 40	0130 E	~~+35 5~~	Fe Ne Clear	90-90	13950
50335	HD 24912	03 52.5	+35 30	00 45	00 54	0116 E		Fe Ne Clear	90-90	14830
50336	HD 24912	03 52.5	+35 30	0059	01 09	0101 E	+35 42	n	90-90	15080
50337	HD 24912	03 52.5	+35 30	01 14	01 23	0046 E		n	90-90	14340
50338	HD 24912	03 52.5	+35 30	01 29	01 41	0029 E		n	90-90	15180
50339	HD 24912	03 52.5	+35 30	01 47	01 56	0013 E		n	90-90	15750
50340	HD 24912	03 52.5	+35 30	02 02	02 10	0001 W		n	90-90	15980
50341	HD 24912	03 52.5	+35 30	02 16	02 25	0017 W		n	90-90	16795

Spectr. Temp.
Focus 39
Spectr. Temp

Spectr. Temp. ..42°F..... Dome Temp./Hum. ..39°F/93% Transparency Conditions ..Clearing..Fast.....150

Focus ....393.....

Spectr. Temp. ..... Dome Temp./Hum. ...../.....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe/ Clear	90-90	7773	poor	4.99	08	BC	1200/50.8	BS	IIa-Oe	1	O Star Var		Stwk
FeNe/ Clear	90-90	9419		4.99	08	BC	1200/50.8	BS	IIa-Oe	1	O Star Var		Stwk
FeNe/ Clear	90-90	8428		4.99	08	BC	1200/50.8	BS	IIa-Oe	1	O Star Var	stwk	Flawed in Dev
FeNe Clear	90-90	12900		4.04	07	BC	1200/50.8	BS	IIa-Oe	1	O Star Var		OK
FeNe Clear	90-90	14140		4.04	07	BC	1200/50.8	BS	IIa-Oe	1	O Star var		
FeNe Clear	90-90	15050	S	4.04	07	"	1200/50.8	BS	IIa-Oe	1	O Star var		
									IIaO-e				
FeNe Clear	90-90	13950		4.04	07	BC	1200/50.8	BS	IIaO-e	1	O Star var	Spect Temp = 41°F	
FeNe Clear	90-90	14830		4.04	07	BC	1200/50.8	BS	IIaO-e	1	O-Star var		
"	90-90	15080		4.04	07	BC	1200/50.8	BS	IIaO-e	1	O-Star var		
"	90-90	14380		4.04	07	BC	1200/50.8	BS	IIaO-e	1	O-Star var		
"	90-90	15180		4.04	07	BC	1200/50.8	BS	IIaOe*	1	O-Star var	note (90sec FeNe → 2550 cts)	
"	90-90	15750		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star var		
"	90-90	15980		4.04	07	"	"	"	IIaO-e*	1	O Star var		
"	90-90	16795		4.04	07	"	"	"	IIaO-e*	1	O Star var		

151 Pg #2

Date 1988 oct 22/23 Observers B/n-T.n

Emulsion Batches:

Diffuser OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B 9/4
50342	HD 24912	03 52.5	+35 30	02 31	02 38	00 30 W		Fe Ne Clear	90/90	15360
50343	HD 24912	03 52.5	+35 30	02 45	02 53	00 45 W		Fe Ne Clear	90/90	15795
50344	HD 24912	03 52.5	+35 30	02 59	03 08	01 00 W		Fe Ne Clear	90-96	16680
50344T	Spot Calib	for 50338-350		15 min @ 15V		D4 3900	D3 4300	D2 4810		
50345	HD 24912	03 52.5	+35 30	03 15	03 22	01 14 W		Fe Ne Clear	90/90	15783
50346	HD 24912	03 52.5	+35 30	03 28	03 36	01 28 W		Fe Ne clear	90/90	15370
50347	HD 24912	03 52.5	+35 30	03 44	03 54	01 46 W	+35 42	Fe Ne Clear	90/90	16030
50348	HD 24912	03 52.5	+35 30	04 00	04 09	02 01 W		Fe Ne Clear	90/90	15700
50349	HD 24912	03 52.5	+35 30	04 16	04 24	02 16 W		Fe Ne Clear	90/90	15400
50350	HD 24912	03 52.5	+35 30	04 31	04 39	02 31 W.		Fe Ne Clear	90/90	16250

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ..Fine.....

Focus .....393.....

Spectr. Temp. ...39.5°F.... Dome Temp./Hum. 0°C / 98%

Diffuser-Out

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe clear	90/90	15360		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star var		OK
FeNe clear	90/90	15795		4.04	07	BC	1200/50.8	BS	"	1	O Star var		↓
FeNe clear	90/90	16680		4.04	07	BC	1200/50.8	BS	"	1	O Star var	T=40°F still set @ 393	Fine
									IIaO-e*				↓
FeNe clear	90/90	15783		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star-var		
FeNe clear	90/90	15370		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star-var		
FeNe clear	90/90	16030		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star-var		
FeNe clear	90/90	15700		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star var		
FeNe clear	90/90	15400		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star var		
FeNe clear	90/90	16250		4.04	07	BC	1200/50.8	BS	IIaO-e*	1	O Star var		

153

Wed-Thurs

Echelle Ret with 200u Fiber Feed

Emulsion Batches: .....

Date Oct. 26-27/88. Observers J.M. .....

Note PS/2 time - 2:5 min behind EST

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
4x	Flat							Tung clear	10s	530
266C	Comp							Th-A 450/448	120s	
	vega	1989 18 36.5	+38 46	EST 18 27	18 39	W				400
				1841				FeNe clear	120sec	
				1845				Th A	120sec	480
	vega	1989 18 36.5	+38 46	1849	1851	0120W				
	Comp			1900				Th A clear	120sec	343
	4x Flat			1905 →	1920		(From Spec Cont)	Tung clear	210sec	535/14
	~~DARK~~	(Dark slide in)		~~1911~~					~~10000~~	

Spectr. Temp. ..... Dome Temp./Hum. + ... / 80% Transparency Conditions Semi clear 154

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung clear	10s	530				Echelle	.4018 1.840	50μ		1872 Ref	JBL	5875Å -3.447	920
Th-A 450μ	120s												
		400		0	AOVa							T=-3449 OK	574
FeNe clear	120sec											Only One line	
Th A	120sec	480										T=-3447	4526
		[illegible]		0	AOVa							Cloud	72
Th A clear	120sec	393											4561
Tung clear	110sec	535, 641, 300, 693										1098, 1341, 617, 1334	
	10000												

155

Date Thurs Fri Oct 27/28/88. Observers Simos K.K.-T.n

Emulsion Batches: .....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
2X	Flat							Tung clear	5 10	900
"	Comp							Th A	120	900
	Vega	18 36.5	1989 +38 46	20 14	20 59	W				1000+
	Vega	"	"	21 03	21 17			Th A	120	320
	Comp						Echelle Source.	Th-A ~~Cl~~	120sec	
4X	Flat							Tung 1/2	15s	230
"	Dark	(15 min to match ~~good~~ ~~ex~~ exp time of Vega)		21 2730					15 min	

Backed up on Floppy as ~~OCT 28~~ OCT2788.DAT

Spectr. Temp. Focus..... Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. ...../..... Transparency Conditions ...Clearing sort of.....156

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Then Cloud.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion λ	P.H.	Program	Remarks	Quality
Th-A	5 10	900				Echelle	.4018 1.840	50μ	600, 5890	1872Ref			
Th A	120	900											417
		1000+	poor	0	A0Va								526
Th A	120	320											310
Th-A	120												4180
Tung 1/2	15s	230										ripple?	400
	5min											Temp -3.11	22

157 Mon/Tue Echelle Reticon with 200u Fiber Feed

Date Oct 31/Nov 1 1988 Observers KK - (Th. A. Sandoven)

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. 1880V
Flat								Tung Full/f/18	75s	1638
Flat comp								"	75s	
Sky				12 43.5	12 45.0			Th A	150s	631
Sky				12 45.9	12 50.0					1545
Sky Comp				12 51.0	12 58.8			Th A	150s	1647
Flat								Tung Full/f/18	75s	1614
Flat								"	75s	1613
Dark	10s									
Dark	360s								1	
728C	Comp Th-A		1986.5					Th A	150s	
794S	Vega	18 36.5	+38 46	17 ~~45~~ 50	18 12	W		Th A	150sec	
926S	"	"	"	18 18	18 53	0241 W		Th A	150sec	
1058S	"	"	"	185730	190723	W	+3844	Th A	150sec	
1190S	"	"	"	193224	20 09	W		Th A	150	
S	DARK ~~Deneb~~	~~2041.0~~	1986.5 ~~+45 14~~	2016	21 02	W		~~Th A~~	~~150~~	

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. +34°/65% Transparency Conditions .. Clear - some hazeq. 158

Focus .....

Cloudy by 21 EST

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. 1800	Seeing	Pig. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H. 1872	Program	Remarks	Quality
Ting Fwd/Flip	75s	1638					600 .4015	50μ	5875 Å	Ret.		-3.24	1465
"	75s											-3.16	1450
ThA	150s	631											537
		~~1545~~										-3.10	1370
ThA	150s	1647										-3.06	1400
Ting Fwd/Flip	75s	1614										-2.99	1473
"	75s	1613										-2.94	1508
												-2.92 FILL UP	
	1											-2.99	
ThA	150s												6176
ThA	150s		OK	0	40Va							-4.238	878
ThA	150s											-4.267	1130
ThA	150s										0	-4.355	846
ThA	150s			~~1.25~~	~~A21a~~							-4.360	1102
~~ThA~~	~~150~~			~~1.25~~	~~A21a~~ [Left Comp Prism In]							-4.395 some cloud	

159 #2

Date Oct 31/Nov 1 Observers T. & KK

Emulsion Batches:

Plate No.	Object	R.A. ~~1900~~ 1986.5	Declination ~~1900~~	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
13225	Deneb	20 41.0	+45 14	21 05.14	21.18	W			
1388L	Flaton							Jung Clear	40
1454L	"								40
1520L	"				21 25				40
1586L	"			21 26	21				40
1652D	DARK [closeup] darkslide in			21 41					3600
1718D	DARK			23 15					600
S	DARK not kept			23 26	23 35				

Backed up as NOV01 88.DAT

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ..Clouding..... 160

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. + ... / 88%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	~~Ptg. Mag.~~	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
				1.25	~~A~~ PIa	Echelle	600/1.4015 x	H= 650μ 50μ	5875Å	1870 Rel		T=-4.410 Thick Cloud	42
Tung Clad	40												802
	40												796
	40												793
	40											Toppup @ 21:30	796
	300											After Toppup T=-4.640	702
	600											T=-4.936 @ 2315	24
													39

Comment (Nice spike on middle Row)

161

Wed - Thurs

Date . Nov. 2/3/88 . Observers . F.d.s. - T.n.

Emulsion Batches:
2.02, 0.32 . IIaO-e 1A7 - Oct 21/88
1.95, 0.32 * IIaO-e 1A7 - Oct 22/88
Diffuser-IN unfortunately

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. Filter
50351	HD 36960	05 30.1	-06 04	00 55	01 24	01 37 E	-06 03	FeNe Clear	?/90s	215K*
50352	HD 36959	05 30.1	-06 04	01 39	02 13	00 47 E	-06 03	FeNe Clear	90/90sec	12300
							Diffuser OUT			
50352 T	Spot Cal'n for 50351-53				15 min @ 15V	D4 3900	D3 4300	D2 4810		
50353	HD 36960 ~~Spot~~	05 30.1	-06 04	02 19	02 36	00 25 E		FeNe Clear	90/90s	12,270
50354	HD 23793	03 42.6	+10 50	02 44	03 01	01 48 W	+11 03	"	90/90	12260
50355	HD 20365	03 11.5	+49 51	03 11	03 28	02 44 W	+50 07	"	90/90	12140
50355 T	Spot Cal'n for 50354-59.				15 min @ 15V	D4 3900	D3 4300	D2 4810		
50356	HD 20809	03 16.1	+48 51	03 35	04 02	03 13 W	+49 07	FeNe Clear	90/90	12218
50357	HD 42560	06 06.2	+14 13	04 09	04 31	00 53 W	+14 10	"	90/90	12700
50358	HD 42690	06 07.0	-6 31	04 37	05 32	01 54 W	-6 36	"	90/90	11935
50359	HD 45546	06 23.0	-4 42	05 40	06 11	02 18 W	-4 48	"	90/90	12097

Spectr. Temp
Focus 3
Spectr. Temp.

Oct 21/88
Oct 22/88 D-Fusar-W

Spectr. Temp. +39°F Dome Temp./Hum. +34°F/80% Transparency Conditions Clearing but gusty N62

Focus 393

Spectr. Temp. +37°F Dome Temp./Hum. +31°F/90%

Had to connect, turn HV on & balance

* No exp meter for 1st part of 1st exp.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B' filter	Seeing	Eq. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks (Prob work FeNe)	Quality
FeNe Clear	90/90	≈15K*	poor	4.78	B0.5V	BC	1200/50.8	BS	IIaO-e	1	B star	NE of close brt pair	OK
FeNe Clear	90/90	12,300	poor	5.67	B1V	"	"	"	"	1	"	FeNe 40secs = 2746 cnts	OK
CUT												↑ this is SW of brt pair	
									IIaO-e				✓✓
FeNe Clear	90/90	12,270		4.78	B0.5V	BC	1200/50.8	BS	IIaO-e	1	B star	NE and brighter of pair	OK
"	90/90	12,260		5.07	B3V	"	"	BS	*IIaO-e	1	B star	Some cloud Nice close vis binary	OK
"	90/90	12140		5.15	B3V	"	"	BS	"	1	"	Fld drawn	OK
D2 4810									IIaO-e*	~~1~~	~~4~~		✓✓
FeNe Clear	90/90	12218		5.29	B5V	BC	1200/50.8	BS	"	1	B star	cloud	OK
"	90/90	12700		4.48	B3V	"	"	"	"	1	"	cloud	OK
"	90/90	11935		5.05	B2V	"	"	"	"	1	"	cloud during 1st half	OK
"	90/90	12097		5.06	B2V	"	"	"	"	1	"	semi cloudy	OK

163

Thurs-Fri Stefl

Date Nov. 3/4/86 Observers ~~Stefl~~ - Tg

Emulsion Batches: $8^m 68^s$ IIaO-e 147 - Oct. 22/88
1.63, 0.24

Diffuser Out

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Spectr. Temp.
50360	KX And HD 218393	23 02.6	+49 39	18 20	20 16	0013 E	+50 06	FeNe clear	90/60/90	4580 732	
50360T	Spot Calib for 50360-61.				15min@15V	D4 3900	D3 4300	D2 4810			
50361	O AND HD 217675	22 57.3	+41 47	20 37	20 42	0018W	+	FeNe clear	90/90	7900	

Spectr. Temp. +44°F Dome Temp./Hum. 42°F/72% Transparency Conditions Cloudy 164

Focus 3.91

Spectr. Temp. Dome Temp./Hum. /98%

Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
4580 732	OK	7.28	B3pe K1III	BC	1200/508	BS	IIaO-e	1	Shell star	Cloud	sl wk
							IIaO-e				v l
7900	OK	V= 3.6	B6e	BC	1200/50.8	BS	IIaO-e	1	Be star	some cloud	OK

Oct 22/88

Diffuser Out

Comparison Type/Filter	Exp.
Fe/Ne clear	90/90
D2	
480 Fe/Ne clear	90/90

165

Mon-Tues

Date Nov. 7/8/88 Observers Stef/Tu

2.78, 0.31

Emulsion Batches: 0.98-02E Nov 3/8

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	* Exp.
50362	O And HD 217675	22 57.3	+41 47	20 08	20 18	00 08W		FeNe Clear	12-17
				~~20 22~~				FeNe Clear	~~12~~
50363	HD 217675	22 57.3	+41 47	20 22	20 30	00 20W		Diffuser in	12 12
50363T	Spot Calib for 50362-63			15 mins		D315V 4810	D 7V H2	~~D2 74~~ ~~5462~~	*

Spectr. Temp. 44°F Dome Temp./Hum. 40°F / 70% Transparency Conditions Cloud coming in 166
hole closing

Focus 39.5

Spectr. Temp. Dome Temp./Hum.

B filter in

Exp. Mtr.	Seeing	~~Ptg. Mag.~~	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
19000		3.6		BC	1200/405	BS	098-02E	1	Be star	* B filter in 12sec FeNe = 350 cnts * B filter out Diffuser in for FeNe	Follo ~~Exp OK~~
B filter out											
29428		3.6	B6e	BC	1200/405	BS	098-02E	1		In Cloud [12sec FeNe = 1582 cnts]	ok
* Note -	DI TV Hα	for last set					098-02E				✓
ie [Middle set may be dbl of Hα + 5450]											

Comparison Type/Filter	Exp.
FeNe Clear	12-12
FeNe Clear	12
Diffuser in	12 12
~~DI TV Clear~~ *	

167

Emulsion Batches: .....

Date ..... Observers .....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	FLAT			1528				Tung 1/16+1.2	3600
	DARK 2 Hrs [shutter was left open Indeed @ end)								7200
	DARK 2HRS. shutter closed			0058					7200

Spectr. Temp.
Focus.....
Spectr. Temp.
Exp. Mtr. | S

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Turq 4101.2	3600	2100					1200 48.2?	BS					
	7200									IA			
	7200									IA			

169

Mon-Tues

Date Nov 14-15 1988 Observers T. Stefl

1.67, 0.24 8m 68° 2.14, 0.35 4m 65°

Emulsion Batches: IIaO-e 1A7 Nov 3/88; 098 o2e Nov 3/88; Diffuser OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mir. & Filter
50364	KX And HD 218393	23 02.6	+49 39	17 49	20 17	00 32W	+50 06	FeNe Clear	60 60 60	4900 4965
50364T	Spot Calib for 50364, 67→74.				15 mins @ 15V	D4 3900	D3 4300 D2 4810			
50365	HD 218393	23 02.6	+49 39	20 24	22 18	02 33W	Diffuser IN *	FeNe Clear	8-8-8	no filter 30140 19500
50365T	Spot Calib for 50365-66.			15 min @		D3 15V 4810	D1 7V Hα	D2 7V 5450		
50366	O And HD 217675	22 57.3	+41 47	22 28	22 44	03 02 W	+42 12	FeNe Clear	12-12	39000
50367	"	"	"	22 52	22 56	03 14 W	*	FeNe Clear	90-90	8 filter in 9459
50368	HD 218393	23 02.6	+49 39	23 05	01 22	05 34W	+50 06	FeNe Clear	60-60-60	3550 2000
50369	? ERI HD 33328	05 04.4	-8 53	01 36	01 45	00 03E		FeNe Clear	90-90	10,500
50370	HD 26162	04 03.4	+19 21	01 54	02 59	02 18W	+19 34	"	90-90	8,657
50371	HD 33328	05 04.4	-8 53	03 09	03 20	01 32 W	-8 48	"	90-90	11,114
50372	"	"	"	03 26	03 37	01 49W	"	"	90-90	4,123
Em 109.TN	HD 53925	07 01.8	+37 36	03 50		0009W	Em size 39x39	4 frames,		InHx
110.TN	"	MORE Frames		03 55		00 15W	"	5 FRAMES		InHx
50373	HD 44131	06 15.0	-2 54	04 17	05 24	02 23 W	-2 59	FeNe Clear	90-90	5400
50374	HD 33328	05 04.4	-8 53	05 42	06 26	04 37 W	-8 37	"	90-90	9,960

Nov 3/88

3/88

Diffuser-OUT

Spectr. Temp. 47°F Dome Temp./Hum. 42°F / 66% Transparency Conditions Some cloud 170

Focus 391

Spectr. Temp. 38°F Dome Temp./Hum. +31°F / 96% * I Used Fans for 20mins before Observing Moderate NW wind - seeing appears OK but difficult to judge.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe Clear	60 60	B filter in 4900 4965	*	7.28	B3pe K1 III	BC	G=5430 1200/508	BS	IIaO-e	1	Shell Star	Labelled "63" 60sec comp = 1590 cts	OK
									IIaO-e				
FeNe Clear	8-8-8	no filter 20140 19500		7.28	B3pe K1 III	BC	G=4270 1200/405	BS	098-02e	1	Shell Star	Set 391 8sec FeNe = 1600 cts (cudel by Cloud)	good tk OK En
									098-02e				
FeNe Clear	12-12	39000 B filter in		V= 3.6	B6e	BC	1200/405	BS	098-02e	1	Be Star	Cloudy	OK
FeNe Clear	90-90	9459		"	"	BC	600/508	"	IIaO-e	1	Be Star	*diffuser-Out	vs! wk
FeNe Clear	60-60	3550 2000		7.28	B3pe K1 III	"	"	"	"	1	Shell star		51 wk
FeNe Clear	90-90	10,500		4.47	B2IV	FM000109.TN "	Frame 1 2 3 4	XFWHM 3.290213 3.282238 2.937564 2.676524	YFWHM 2.965241 3.091537 3.087762 2.619655	1	B star	SE of bright pair	OK
"	90-90	8657		V= 5.5	gK1	"				1	Std Vel	T=+38°F, Set 393	OK
"	90-90	V1,114		4.47	B2IV	FM000110.TN "	Frame 1 2 3 4	2.755402 ??? (see printout) 2.875981 2.756994	2.452481 2.084885 1.952469	1	B star		OK
"	90-90	V1,123		"	"	"				1	B star		OK
4 frames		Int (x4)		V= 6.19	K1 III		Slitted	150u	Guiding View	TV guider in "N" posn		Seeing Tests (no wind some cloud coming)	
5 frames		Int (x4)		6.19	K1 III		"	Slit 150u	~~IIa O-e~~	"	"	In the clear	
FeNe Clear	90-90	5400 (V=4.8)		6.5	gM1	BC	1200/508	BS	IIa O-e	1	Std Vel	some cloud	OK
"	90-90	9,960	poor	4.47	B2IV	"	"	"	"	1	B star	Reversal	OK

171

Tues/Wed

Andrew YEE

Date Nov 15/16/88 Observers Tn - Fds

1.66, 0.24 8m 68°
1.56, 0.23

Emulsion Batches: IIaO-e 1A7 - Nov 3/88
* IIaO-e - Nov 15/88
Diffuser OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Se
50375	HD 3360	00 31.4	+53 20	18 01	18 08	03 05E		FeNe Clear	90-90	12852	
50376	HD 11415	01 47.1	+63 10	18 24	18 29	0400E	+63 34	"	90-90	12634	
50377	HD 3712	00 34.8	+55 59	18:39	18:55	0218E	+56 24	"	90-90	11700	
50378	HD 20365	03 11.5	+49 51	19:12	19 50	0400E	+50 07	"	90-90	12000	
50378T	Spot Calib for 50375-50380				15min @ 15V		D4 3900 D3 4300	D2 4810			
50379	HD 20809	03 16.1	+48 51	20:01	20 37	0319E	+49 07	FeNe Clear	90-90	12000	
50380	HD 16908	02 37.5	+27 16	20:48	21:20	0155E	+27 35	"	90-90	12000	
50381	HD 22951	03 36.0	+33 39	21 34	22:43	0134E	+33 52	"	90-90	11434	
50381T	Spot Calib for 50381-82				15min @ 15V		D4 3900 D3 4300	D2 4810			
50382	HD 32630	04 59.5	+41 06	22:55	23 21	0219E	—	FeNe Clear	90-90	12000	

Spectr. Temp.
Focus 3
Spectr. Temp.

Spectr. Temp. +41°f Dome Temp./Hum. 38°f/85% Transparency Conditions Semi Cloudy

Focus 3.93

Spectr. Temp. 40°f Dome Temp./Hum. 37°F/98%

getting gusty by 22hrs. getting warmer too.

Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
12852		V= 3.66	B2IV	BC	G=5430 1700/50.8	BS	IIaO-e	1	B star		ok
12634		V 3.38	B3III		"	"	"	1	"		ok
si 700		V= 2.23	K0III		"	"	"	1	Std Vel		ok
12000		V= 5.15	B3V		"	"	"	1	B star		ok
		~~V=~~	~~B3V~~		-	-	"	~~1~~	~~B star~~		~~v.v~~
12000		V= 5.29	B5V		1200/50.8	BS	IIaO-e	1	B star	Spect T = 40°f still	ok
12000	poor	V= 4.66	B3V		"	"	"	1	B star	Cloudy	ok
11434	v poor	V= 4.97	B0.5V		"	"	IIaO-e*	1	B star	Cloudy	v slwk
							IIaO-e*				vv
12000	V poor	V= 3.17	B3V		1200/50.8	BS	"	1	B star		OK

173 Fri-Sat Page #2 Echelle Reticon work
200u Fiber Feed.

Date Nov 18/19/88 Observers YEE-Tu

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
										(with new Tube)
	DARK								1800sec	
	Th-A 1st comp before Vega								150secs	
2665	Vega	18 36.5 (1986.5)	+38 46	17 49	17 59	W	+38 43		10min	143000
3985	Vega	"	"	18 05	18 30	3 30W		Th-A	150 sec	350K
~~398~~	Th-A after 2nd Vega							"	150sec	
	FeNe			18 ~~54~~					240sec	Note
5965	POLARIS	02 18 (1986.5)	+89 12	19 06	20 55	0 57E		Diffuser OUT		
	FeNe			21 00					240sec	
	Flats x3 (30sec 125 cnts) (30sec 136 cnts) (60secs 241 cnts)							Tung Clear		
	Dark [not saved I guess]								3600	
~~9265~~ 9265	~~POLARIS~~ (Comp)	02 18 (1986.5)	+89 12	~~22 35~~		~~West~~	(Diffuser OUT)	FeNe Clear	120sec	
9925	Polaris	"	"	22 35	00 25	0 50 W	+89 14			273K
10585	FeNe Comp			00 26			Diffuser OUT	FeNe Clear	120sec	273K

Spectr. Temp. ..... Dome Temp./Hum. +38°F / 60% Transparency Conditions ... Clear - some cloudy.

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... / ..... Dewar topped up @ 17:15

174

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		(with new Tube)				200μ Fiber Echelle	600 ·4013	50μ	5875Å	Ref 1872			
	1800sec												
	150sec												5462
	10min	143000										T=-3.810	4273
Th-A	150 sec	350K										T=-3.918	1032
h	150sec												5573
	240sec	Note - Setting of X grating off					600 ·4443		5400			T=-3.996	620
							"		5400			T=-4.082	222
Diffuser OUT	240sec												454
Tung Clear												T=-4.086	
(OUT)	360												
Ne Lone Clear	120sec			~~2~~	~~F~~		600/4440	more Ideal		than	·4443	Reversal T=-4.085	4426
		273K		2	F		"					Some thin cloud	1070
Ne Clear	120sec	~~273K~~					"	50μ	5400			T=-4.103	4147
											Then	Top up of Dewar	

175 page #2

Date Nov. 18/19. 1886 ... Observers .. Yee - Tu .....

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1124S	FeNe Comp	after Topup		00 36			Diffuser OUT	FeNe Clear	120sec
1190S	Procyon	07 38.6 1988.5	+5 16	00 46	01 20	E	+		210K
	FeNe Comp			01 21					
	Flats x3	[Spect Contr Tungsten]		#1 (30secs 552cnts)	Diffuser OUT		~~Diffuser OUT~~	Tung Clear	
	Flats x3	"		(20secs 987)	Diff IN,	(20secs 980),	(20secs 972)		
	FeNe Comp	(One line; Not saved)					Diff IN	FeNe Clear	120secs
1718C	Th-A	(Echelle source)							120sec
	Procyon	07 38.6 1988.5	+5 16	01 4828	0257	0104 E	+5 13		150K
	Th-A								120sec
	Flats x3						Diffuser OUT	Tung Clear	~~30~~
	~~DARK [after topup]~~								3600
	Backed up as NOV1888.DAT								

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ..Some cloud.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 1307/95%

Dark current of Exp meter 600 cnts/min

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. on Echelle	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe clear	120sec					Echelle Ret	600/.4440	50μ	5400	1872 Ret			3397
		210K		0.8	(F5IV-V)	"	"	"	5400			T=-4.113	921
													3438
Tung clear		(#2 30 secs	1169	) diffuser IN		(#3 20 secs	778)	diff IN	5400			T=-3.983	
972)		All the Same					600 .4013	50μ	5875Å			T=-3.969	
FeNe clear	120secs												
	120sec						"	"	"			T=-3.957	3603
		50K		0.8	F5IV-V		"	"	"			T=-3.949 ~~sun~~ much cloud	441
	120sec						"	"	"			T=-3.905	3656
Tung clear	36	20secs, 20sec, 10sec					"	"	"			T=-3.900 / 981, 974	492
	3600						"	"	"				

177

PCS with 200μ fiber Feed

Election Day

Date Nov. 21/22/88 Observers T.n

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
~~SP001414~~ mkl	FLAT	On Platform		18 12	18 42	Diff IN	ND 2.0 in	Tung A=1/8	1800s	140	25
	Fe A Comp			21 32	21 42	DIFF IN	ND out	Fe A Clear	600	155	35
	Fe A Comp			22 21	22 31	DIFF OUT	ND OUT	Fe A clear	600	210	45
	FLAT	on platform		22 39		DIFF OUT	ND IN	Tung A=1/8	1800	250	18
	DARK								7200		
Tests Nov 22/23/88 - KK had reported that he brought signal up x 2x Today. Still 1/2 of Oct											
1416	FLAT	On Platform		18 14	19 14	DIFF IN	ND IN 2.0 Igness	Tung A=1/8	3600	1370	45
	FLAT 2hrs	"		20 08		"	"	"	7200	1400	45
	Flat 2hrs			22 42		"	"	"	"	1460	45

Spectr. Temp.

Focus.....

Spectr. Temp.

PCS Readings

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ... Cloudy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung A=1/8	1800s	40	25				PCS	1200/4842	BS	6560Å	IB		written	
FeA Clear	600	155	35				"	"	"	"	IB			
FeA clear	600	210	45				"	"	"	"	IA			
Tung A=1/8	1800	250	18				"	"	"	"	IA			
	7200										IB			
		Note - These Signal Levels are low by ≈ 1/4 of Oct 18 → Oct 12 readings.												
Still 1/20 of Sat		Readings All noted in Dome Logbook.											Tu	
Tung A=1/8	3600	1370	45				PCS	1200/4842	BS	6560	IA	write		
"	7200	1460	45								IB			
"	"	1460	45											

179

Wed - Thurs PCS with 200μ Fiber

Date Nov. 23/24/88. Observers Tan / Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1419	Flat			17 04	17 33 48		ND 2.8	A=1/8	1500
1420 MKI	FeA Comp	198815		17 38			No ND	FeA Clear	300
SP00 1421 MKI	HD 213947	22 34.1	+26 32	17 51	18 07	00 34 E	+26 30		1800
SP00 1422 MKI	FeA Comp after HD 213947						NO ND	FeA Clear	300
	V Long DARK			18 23	20 13	Halted @ 65900 approx			11K sec
	Long Fe-A	1900		20 18					600s
FM 1116 TN	HD 224085	23 49.9	+28 06	≈ 20 56		00 56 W	In "N" mode	Int X 4	1500
		23 54 25	+28 36 (1989)		Halted				
SP 1425 MKI	HD 224085	"	"	20 58	21 23	01 25 W	+28 32		~~1800~~
SP 1426 MKI	FeA Comp			21 27				FeA Clear	600 sec
	Long Dark (written next night)								

		XFWHM	YFWHM
FM000111.TN	Frame 1	2".836724	2".070000
	2	2".600346	2".369685
	3	2".804667	2".416205
	4	2".918671	2".19444

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mtr. A	B	Se
1400	50	
335	110	
900	30	Fe
Note. Eta		
I can tel		
340	100	
515		
350	100	
39X39		
400	13	0

Spectr. Temp. ..... Dome Temp./Hum. 34°F/60% Transparency Conditions .S/hazy - V. cloudy..

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Fans on & Dome open for 1/2 hr before start

180

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
A-18	1800	400	50				BC	1200/48.2	BS	6560Å	IB			
FeA Clear	300	335	110				"	"	"	"	IB			
	1865	900	30	Fine	V= 7.53	K4III	"	"	"	"	IB	Std Vel	Halted @ 950 sec As high as 1400 cts in A	
		Note. It was hazy, but clear at 1st, great seeing and signal in A was over 1000 - Then cloudy. I can tell seeing very good by the sharp cutoff in signal when trailing in RA.												
FeA Clear	300	340	100				BC	1200/48.2	BS	6560Å	IB			
[illegible]	11Ksec	5	15				"	"	"	"	IB		written	
	1605	350	100				"	"	"	"	IA		written	
Int X4	1500	(39X39 pixels)			V= 7.5	K2e	4 Frames in a Row (not looking in order not to bias things, thin cloud							
	1800	400	13	OK	"	"	BC	1200/48.2	BS	6560	IA	Rci pgm	getting cloudy again	
Fe-A Clear	600 sec						"	"	"	"	IA			

181

Thurs Fri

Date Nov. 24/25/88 Observers J.V.

Hilo MKI

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1427	2hr dark (Previous night)			early morning Nov 24					
1428	FLAT			≈ 1730		ND 20 IN	Diff IN	Tung A=1/8	1800
1429	1st Comp FeA			1737		No ND	"	FeA Clear	600
1430	KX And HD 218393	23 02.6	+49 39	17 50	18 20	0047E	+50 04	End FeA	600
FM00112.TN	KX And Seeing Test	"	"	18 35	FM000112.TN (Image acqu. mode)	XFWHM YFWHM 1 1".335054 1".408071 2 2".090626 1".599711 3 1".348622 1".975021 4 1".842441 2".155348		Int x 4	
113.TN	" "	"	"	18 40				Int x 4	
1432	HD 218393	"	"	18 42	18 12	0005W			1800
1433	FeA Comp							FeA Clear	600
1434	HD 213947	22 34.1 (1988.5)	+26 32	19 26	19 56	0122W	+26 31		1800
1435	FeA Comp	Short one now						FeA Clear	300
1436	HD 224085	23 49.9 (1900)	+28 06	20 07	21 07	0113W	+28 32	(FeA Clear)	3600
FM00114.TN	HD 224085 seeing test (done just before previous exp ≈ 2005							Int x4	
1438	HD 6413	01 04.6 (2000)	+39 59	21 21	21 51	≈ 1h +			
1439	FeA								300

Cont next page [Had to UPLOAD to FIFO's. If you do WD, follow by "F

Spectr. Temp. ..... Dome Temp./Hum. 37°/60% Transparency Conditions ... v sl hazy but clear.

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ..... Fans Run 40mins before Exp start

182

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						PCS							
						BC	1200/4842	BS	6500Å	IB	FM000113.TN Frame 1 1.835054 1.408091 Frame 5 2.873387 2.840459		
											2 2.090620 1.599711 6 2.942349 3.105881		
											3 1.848622 1.975021 7 2.998406 3.071282		
Tung A-7/6	1800	360	48					BS		IA	4 1.842441 2.155348 8 2.956621 2.997907		
FeA Clear	600	350	89							IA		Duplicate of frames in file 112.	
End FeA	600	650	20	Fine	V= 7.28	B3pe +K1III				IA	Stetl pgm	A= cats as high as 880	
Int x4		39×39 pix	"	"	"	[Image acquisition Mode]						Very light SE breeze	
Int x 4		31×31	"	"	"	Guiding (Fiber head) View.				~~IA~~	prob include 1st 4 frames at image acquisition		
	1800	500	20	"	"	"	BC	1200/4842	BS	6560	IA	Stetl pgm	
FeA clear	600	350	90				'	'	'	IB			
	1800	1200	36	ok	V= 7.53	K4III	'	'	'	IB	stdvel	as high as 1400 cnts	
FeA Clear	300						'	'	'	IA			
(FeA Clear)	3600	400	10	soso	V= 7.5	K2e	BC	1200/4842	BS	6560Å HrL	IA	Rci pgm	Comp #1437 Qual as high as 600 cnts
Int x4		(39.39)	Guide mode 4 Frames							0010W	Very light East breeze		
		650	20		V 6.57	FOV	BC	1200/4842	BS	6560	IA	Rci telluric std.	
	300									IB	FM000114.TN Frame 1 3.126667 2.731061		
											2 3.345211 3.428868		
										~~IA~~	3 3.483138 2.912817		
											4 3.572444 3.346138		

MD, followed by "FI" and then Reboot PS12; The PCS fails so UPLOAD needed.

183 Pg #2 Thurs Fri cont.

Date Nov 24/25/88 Observers J. L. / Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
				(Previous window)							
1440 (Del)	~~FeA Comp~~	Dbl Exp.: Pelek	1986.3 ~~22 35~~			NO ND	Diff IN	FeA Clear	300		
1441	Bm Cass	00 53.9	+64 01	22 42	23 42	02 49 W	+63 58		3600	130	10
42	FeA							FeA Clear	300	130	
43	HD 218393	23 02.6	1900 +49 39	23 49	00 23	05 15 W	+50 03		2000	600	15
44	FeA							FeA Clear	300		
45	HD 32963	05 07.2	1989 +26 19	00 32	01 03	0002 E			1800	500	15
46	FeA Comp							FeA Clear	300		
1447	~~HD 65583~~ MYSTERY	*	1989 (Prob HD 63712,	07 45.2,	+29 26 (1900)	G5)			1080	1100	25
		07 49.6	+29 15	01 22	01 40	02 09 E	+29 09				
1448	FeA	† (Note Check #1387 Oct 15/88) †						FeA Clear	300		
	HD 65583	07 59.8	+29 15	01 56	02 26	E	+29 12		1800	1000	30
	~~FeA~~ FM000115.TN	of HD 65583		02 27		" E	"		~~300~~	(4x Int	
1450	FeA		FM000115.TN Frame 1	XFWHM 2".331437	YFWHM 2".674258			FeA Clear	300	4	
1451	Flat 2hrs	on timer		2 2".357106	2".454747	ND 2.8 3	Diff IN	Tung H=1/8	7200 ~~300~~	1200	35
				3 2".265773	2".335357						
				4 2".659634	2".639294						

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ..Clear.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 30.7°F/99% Fog coming

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
										6560	IA	wrong star N. ~~[illegible]~~ Hα or CBd.		
FeA Clear	300									"	~~IA~~	deleted		
	3600	~~130~~	10	ok	V ≈9	Hα	PCS BC	1200/482	BS	"	IB	Obs pgm	as high as 200 cnts	
FeA Clear	300	~~130~~				"	"	"	"	"	IA		~~RA 2000 23 07~~	
	2000	600	15		V= ~~7.5~~	B3pe +K1 III	"	"	"	"	IA	~~K~~ And	RA 2000 2307	
FeA Clear	300										IA			
	1200	500	15		V= 7.73	G2V	"	"	"	"	IA	Std. Vel.		
FeA Clear	300						"	"	"	"				
	1800	~~1100~~	25	ok	V= 7.00	G8III	"	"	"	"	IA	~~std vel~~	* ~~set at~~ 07 50.7 RA	
FeA Clear	300						"	"	"	"	IB			
	1500	1000	30	ok	V= 7.0	gG7	"	"	"	"	IB	std vel		
		(4x Int)			39x39 pixels		~~4~~ frames		"	"	~~IB~~		sl foggy no wind at all	
RA Clear	300	~~4~~					"	"	"	"	IB			
Twing H=1/8	~~1200~~ 1200	200	35				"	"	"	"	IB		w/ Dmex + nig 6t	

Fri Sat

Date Nov. 25/26 ..... Observers ..Jn./Yee/MF.....

Emulsion Batches:

.....

.....

.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1452	Long FeA			1724	1734	NO ND	Diffusing IN	FeA Clear	600
1453.MKI	HD 213947	22 34.1 (1988.5)	+26 32	1740.34	1811	0020 E	+26 29		1800
FM000116.TN	" Seeing test			1813		"	"	(Int x 4)	
1454	FeA							FeA Clear	300
1455	HD 212280	22 22.0 (1988.5)	+30 18	1822	1852				1800
1456	FeA							FeA Clear	300
× 1457	HD 213389	22 30 (1988.5)	+49 18	1902	1933	0107 W	+49 16		1800
1458	FeA							FeA Clear	300
× 1459	HD 218393	23 07 (2000.0)	+50 04	1939	1950	0055 W			
1460	FeA Long Comp			2003		No ND	Diff IN	FeA Clear	600
1461	HD 217188	22 58.3 (1988.5)	−00 22.6	2028	2058	0203 W	−00 25		1800
1462	FeA							FeA Clear	300
1463	HD 216489	22 52.5 (1988.5)	+16 46.9	2105	2126	0237 W	+16 44		1200
1464	FeA							FeA Clear	300
1465	HD 8779	01 25.9 (1988.5)	+00 28	2134	2205	W	−00 26		1800

FM000116.TN

Frame	XFWHM	YFWHM
1	3".502831	2".814746
2	3".860069	2".946111
3	3".424982	2".696935
4	3".430977	2".697287

Spectr. Temp.
Focus .....
Spectr. Temp.

Exp. Mtr. A	Exp. Mtr. B	Se
~~1350~~	~~30~~	
1350	30	
39x39 pixel		
450	12	
1400	30	
350	100	
380	100	
400	12	
1100	50	
700	20	

Spectr. Temp. ..... Dome Temp./Hum. 37°F / 85% Transparency Conditions. Some thin cloud or haze.

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ...../.....

Fans On for ≈ 1/2 hr before start
SW East breeze

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst. BC	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeA Clear	600	~~1350~~	~~30~~				PCS	1200/48.2	BS	6560Å	IA			
	1800	1350	30	OK	V= 7.53	K4III	BC	"	"	"	"	Std Vel		
(Intx4)		39x39 pixels		SOSO ~~OK~~	"	"	4 frames; "N" mode for Guider, Image above						Fiber circle in guide image	
FeA Clear	300						PCS	1200/48.2	BS	6560Å	IA			
	1800	450	12		V= 7.5	F/G 5IV	PCS	1200/48.2	BS	"	"	Mki pgm		
FeA Clear	300						"	"	"	"	"			
	1800	200	30	SOSO-OK	V= 6.4	K2III	PCS	"	"	"	"	Mki pgm	As high as 1700	
FeA Clear	300	50	100				"	"	"	"				
				OK	V= 7.3	B3pe HKIII	"	"	"	"	"	Stefl pgm	Clouded out	
FeA Clear	600	380	100				"	"	"	"	IA			
	1800	400	12	O.K.	V= 7.3	K0III	"	"	"	"	"	Mki pgm	Clear again!	
FeA Clear	300						"	"	"	"	"			
	1200	600	50		V= 5.6	K1.5 II-IIIe	"	"	"	"	"	Mki pgm.	As high as 2450 counts ← 2200	
FeA Clear	300						"	"	"	"	"			
	1800	700	20		V= 6.4	gG0	"	"	"	"	"	Std Vel	thin cloud	

187

pg #2

Date Nov. 25/26 1988. Observers J.G./Yee./MF

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Sec
1466	FeA long			2206	2215				600	3990	
1467	mKI Flat 2 hrs.										

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
3590				PCS BS	1200/48.7	BS	6560Å	IH			

189

Thurs Fri Page 1

Date Dec. 1/2/88 .... Observers ..ABL-TN.....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	Flats x4 Before opening or moving Dome or telescope					Plytform etc			10sec
FM00117.TN	HD 212222	22 21.8 Seeing test	+42 04.7 (2000)	17 44		0010E	+4158	Int	x4
530-728	Flats x4 After all Opening up & setting up on previous Star						+4258		10sec
745	FeNe Comp Long* [Signal too strong: Bombs Plot and Program]						Diff IN	FeNe Clear	240sec
860S	FeNe Comp	1988.5					Diff OUT	"	120sec
926S	Deneb	20 41.0	+45 14	18 15	1850	0236W	+4512		35min
992S	FeNe comp	*(Signal too strong)		1850			Diff OUT	FeNe Clear	120sec
	Flats x4			1857		0240W	DIFF IN		10sec
1322S	Deneb	20 41	+45 14	1909	20 08	0354W			
	FeNe						DIFF IN		120
-1652	Flats x4	[691, 682, 683, 681]		20 16		Tung H=Clear	DIFF IN		10sec
1718D	DARK		Lights	OUT					3600
1784-1982	FLATS x4	663, 661, 657, 655		2226			Diff IN	Tung Clear	10sec
	Flats x4	[after Top up by Andrew]		2328			Diff IN		
				Otherwise, no one went into instr Room				since	[illegible]

Spectr. Temp. ..... Dome Temp./Hum. +29°F/75% Transparency Conditions ... Part. Clear Mostly

Focus ..... CROSS GRATING

Spectr. Temp. ..... 40.6 Dome Temp./Hum. ..... 5 Gusty wind NW 14 knots 190

note Exp meter Dark 1min = 380

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality cnts
	Noise	Fan not				BC	600/~~1110~~ 40.6	50μ	5875A	1872 Rot			≈ 700 each
Int	x4	turned on for Expmeter	POOR	V= 6.3	B			Fiber Head				No Fans on before	
	10sec							50μ	5875A			Fans turned on ≈ 18h15	≈ 700 each
Felle Clear	240sec												14500
"	120sec											Done before setup on star. Dome turned	14558
	30min	Exp meter turned on				FM000117.TN	Frame 1	X FWHM 4.973812	Y FWHM 4.082457				
		19,300	POOR	V= 1.25	A2b		2	4.556231	4.160842			"No hump" at Lower Right. windows closed	274
Felle Clear	100sec						3	4.813145	4.299515				
							4	4.782607	3.858865			Fans off @ 1855	14500
	10sec											T = -4.759	≈ 700 each
		58000										("hump" at Lower Right)	408
	120		Turned Exp meter off										1019
	120											-4.759	
	300											-4.805	43
No Clear	120sec											Top up @ 2316	
		cnts 662, 661, 658, 657											
Clear	600sec	These are tests of mechanical stability of eschelle.										T - 4.746	

191 Page 2 Cont of Previous tests

Date Dec 1/2 Cont Observers Tin

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	Flats x4			0204	0208		Diff IN	Tung Clear	10sec
	LONG DARK			0212					7200
Note → Dec 2/3/88 Fri-Sat				Tn/Yee					
Dec 2/88	A Flats	From Echellex program (Tung Halide)					"	"	10 sec
cont	4 Flats	(2665→4645)		17:48	1752	platform	Diff IN	"	10sec
5965	DARK			2013	2039				
6625	FeNe			2049			Diff IN	FeNe clear	90sec
Fm 118.IN	HD 11905	01 57.9 (2000) 1989.5	+41 41	2104		≈00.20E Reversed		Int	x4
	Polaris	02 20.7	+89 13	2130	2243	01 05W	+89 18		
	FeNe							FeNe Clear	90sec
	Flats x4 before top up and Exp Meter Fan turned on)								
	FeNe after top up	1989.5							90sec
	Procyon	07 38.6	+5 16	2309	0001	E	+5 12		
	FeNe			0002					90sec

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 28°F / 90% Temp earlier had fallen to +24°F in Dome

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung Clear	10sec									659, 656, 660, 654			~~659~~ 657
	720												
"	10sec												
"	10sec		Dome Temp = 30°F				H = 90% at beginning					~~T = 4.766~~	
		677, 668,		670,	664		600 .4016	BS	5875Å	Ret 1875		T = -4.766	
							XFWHM YFWHM						18
FeNe Clear	90sec					FMcc0118.TN Frame 1	? ? ? ? (See printout)						8073
						2	3.″286810 2.″638910						
						3	3.″624970 2.″725323						
						4	3.″436113 3.″024363						
Int	x4	4 Frames	SO.SO	V = 6.53								Slight ~~wind from West~~ Fans turned on after seeing test	
			poor	2	F		600 .4016	BS	5875Å		A.sm Spkk	Fans off @ 2155	570
FeNe Clear	90sec												8048
			648, 643,			637, 635					Then top up	[Exp meter dark = 2400/min T = -4.757	8249
	90sec	87, 300	poor	V 0.8	F5 IV-V	BC	600 4016	BS	5875Å				1098
		Note, As far as tests of mechanical stability; No one entered instr Room until ≈23 hrs top up											
	90sec												8214

193 #2 Cont of Echelle Ref Obs with 200μ Fiber Feed

Date Dec 21/31/88 Observers Tn Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
Fm00119.TN	HD 33202 *	No good; It's a dbl, Δm=.3	Sep 18"	00 21		00 13E	+37 14	Int	x4	'N' mode
13225	Sirius	06 44.7 (1988.5)	-16 42	00 33	00 45	01 27E	-16 45			70K
13685	FeNe			00 46				FeNe Clear	90sec	70
14545	Sirius	06 44.7	-16 42	00 49	01 06	E				102K
15205	"	"	"	01 07	01 25	E				103K
15865	"	"	"	01 26	01 42	00 30E	-16 45	FeNe Clear	90sec	103K
17185	Regulus	10 07.8 (1988.5)	+12 01	01 50	03 15	02 22E	+11 58			99K
1784	FeNe							FeNe Clear	90sec	
Fm00120.TN	HD 70647	08 24.7 (2000)	+42 01	4 Framos		39x39 Pixels		Int	x4	
1210TN	"	"	" (1988.5)		03 27	00 20E	+42 00	Int	x4	Note-87
1850 S	FeNe Long	~~06 37.1~~	~~+16 25~~						240sec	
	HD 47105	06 37.1	+16 25	03 47	05 02	W	+16 23	FeNe Clear	90sec	80K
	Flats x4			05 09				Tung Clear	10sec	676, 676
	~~Th~~ A [From Echelle: Prism moved with Cable]							~~Th~~ A Clear	300	
	GLONG started									

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ..... Hazy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 27°F / 98%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Int	x4	"N" mode	poor	V 6.2		4 Frames	on Fiber head		39x39 pixels			Steady West wind	dbl
		70K		V= 1.46	A0	BC	600 .4016	BS	5875Å			T=-4.113	764
FeNe Clear	90sec	70		FM000119.TN	Frame 1	XFWHM 3".266562	YFWHM 2".909703		FM000120.TN Frame 1	XFWHM 2".571198	YFWHM 2".156796		8024
		102K	poor	(Not good, double star)	2	3".329478	2".838658		2	2".731343	2".849749	T=-4.079	1147
					3	3".273404	3".225931		3	2".819497	2".413593		
					4	3".479049	3".446971		4	2".512563	2".603320		
		103K										T=-4.057	1058
FeNe Clear	90sec	103K				FM000121.TN	Frame 1	XFWHM 2".571198	YFWHM 2".156796	Frame 5	XFWHM 2".721206	YFWHM 1".907227	1181
							2	2".731343	2".849749	6	2".589150	2".277704	
		~~99~~K	V poor	V= 1.35	B7V$_n$		3	2".819497	2".413593	7	2".597743	2".444336	~~786~~
							4	2".512563	2".603320	8	2".742180	2".045424	T=-4.046
							Duplicate of frames in file 120.						
FeNe Clear	90sec	~~7950~~											7800
Int	x4	~~4500~~		V= 6.18	gK5	"N" mode of TV guider [On Fiber optic Head]						SI breezy from South	~~786~~
Int	x4	Note - 8 FRAMES. 1st 4 are previous Record 2nd 4 done the same, ie nothing changed, but I notice that 1st 4 when overviewing them, had a "Halo" about images.											14500
	24sec												
FeNe Clear	90sec	80K	90 SO ~~ok~~	V= 1.93	A1 IV	BC	600 .4016	BS	5875		Asm Sp KK	T=-4.065	592
Tung Clear	10sec	678, 676, 668, 665				"	"	"	"				
FAA Clear	300					"	"	"	"				14000
						Backed UP as DEC0288.DAT							

195

Sun – Mon

$8^{m}680$

Emulsion Batches: IIa-O e 1A7 Nov 15

Date Dec 4/5 88 Observers Bln – Yee

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50383	HD 199579	20 56.2 1988	+44 53.3	18:52	19:25	03 08 W	+44 49	Fe Ne/ Clear	90

Spectr. Temp.
Focus ...
Spectr. Temp.

Exp. Mtr. Sec

Spectr. Temp. 32F Dome Temp./Hum. 32F / 68% Transparency Conditions O.K. – cloudy 196

Focus 399

Spectr. Temp. 32F Dome Temp./Hum. 32F / 79%

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
1400	Poor	BV= 5.96	O6V	B.C.	830/40.2	B.S	IIa-Oe	1		Cloud over	wk

197 Tues-Wed

Date Dec 6/7 88 Observers Stoff - Tn - Yee

Emulsion Batches: 2nd batch IIa-O-e* 1.41, 0.18 118 Dec 6/88 8m 680 7 hrs evacuated; IIa-O-e IA7 Nov 15 1.76, 0.28; 098-02e 4m 680 Dec 6 1.69, 0.24 (Diffuser out for IIaO exps.) ~~DIFFUSER~~

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50384	HD 217675 O And	22 57.3	+41 47	17 42	17 48	0026E		Fe Ne/ Clear	90-90
50385	HD 218393 KX And	23 02.6	+49 39	18 00	20 13	0153W	+5006	Fe Ne/ Clear	60-60-60
50385T	Spot Cal'n for 50383 (Previous night) + 50384 - 86 + (89 290) 5 min							D4 3900 @ 15V	D3 4300 D2 4810
50386	HD 33328 λ Eri	05 04.4	-08 53	20 27	2104	0317E	-8 47	Fe Ne Clear	90-90
50387	HD 218393	23 02.6	+49 39	21 26	23 20	05 00 W	+50 06	Fe Ne* Clear	7-7-7
50388T	Spot Cal'n for 50387 - 88 15 min @ 15V				D3 4810	D1 Hα (7V)	D2 5450 7V		
50388	HD 217675 O And	22 57.3	+41 47	23 30	23 38	0524 W	+42 13	Fe Ne* Clear	11-11
50389	HD 33328 λ Eri	05 04.4	-08 53	23 48	00 05	00 16 E	-8 48	Fe Ne Clear	90-90
50390	"	"	"	00 12	00 22	00 01 W		"	90-90
50391	HD 26162	04 08.4 1986.5	+19 34	00 31	01 32	0210 W	+19 32	Fe Ne Clear	90-90
50392	HD 33328	05 04.4	-08 53	01 34	01 54	01 33 W	-8 48	"	90-90
50392T	Spot Cal'n for 50392 - 95				15 min @ 15V	D4 3900	D3 4300	D2 4810	
50393	28 Tau	03 48.5 1988	+24 06	02 04	02 28	0328 W	+2402	"	90-90
50394	HD 36576 120 TAU	05 32.5 2000	+18 32	02 41	03 20	0235 W	+18 29	Fe Ne Clear	90-90
50395	HD 33328 λ Eri	05 04.4	-08 53	03 38	0350	0330 W		Fe Ne Clear	90-96
50395F	Focus					00	+15 0	"	90/90

Spectr. Temp. Focus 39 Spectr. Temp.

Exp. Mir. B Filter	
12000	
5000 5000	
10000	
B filter out 2000/20000	
B filter out 4,816	
13400	
12000	
6300	
11,377	
11500	
11000	
2871	

Spectr. Temp. 42F Dome Temp./Hum. 39F / 68% Transparency Conditions Clear - s/hazy 198

Focus 393

Spectr. Temp. 41°f Dome Temp./Hum. 38F / 88%

Fans on for ≈ 40 mins before 1st Exp. getting gusty

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
B Filter IN											
2000	O.K.	V= 3.6	B6e	BC	G=5346 1200/50.8	BS	IIa-0e	1	Be star		OK
5000 5000	O.K.	V= 7.28	B3pe K1 III	BC	"	BS	"	"	Shell star		OK
							"				✓✓
10000	poor	V= 4.47	B2 IV	"	"	"	"	"	B star	T=42f, Set 495	v/s/w-K
B Filter OUT 20000/20000	so so	V= 7.28	B3pe K1 III	"	G=4270 1200/40.5	BS	098-02e	1	Shell Star	Exposimeter *Diffuser IN/No Filter	Fe Nestr Stars Exp OK
							098-02e			7sec FeNe = 1600 cnt exp meter	✓✓
B filter out 41,816	poor	V= 3.6	B6e	BS	1200/40.5	BS	098-02e	1	Be star	~~90 secs FeNe = 3.4 counts~~	Fe Nes Lstr Exp OK
13400	"	V= 4.47	B2 IV	"	G=5340 1200/50.8	"	IIa-0e	1	B star	(Diffuser OUT for Blue exp)	OK
12000	so so	"	"	"	"	"	"	"	"		OK
6300	poor	V= 5.50	K1 III	"	"	"	IIa 0-e*	"	std Vel	still v gusty	s/w-K
11,377	poor	V= 4.47	B2 IV	"	"	"	"	"	B Star		OK
							"				✓✓
11500	poor	V≈ 5	B8	"	"	"	"	"	Be star		OK
11000	poor	5.5	Bp	"	"	"	"	"	"	Set 393 T=40f (Upscaud Broken)	Fe pure
2871	poor	V= 4.47	B2 IV	"	"	"	"	"	B star	Cloudy (Reversal)	~~Fe pure~~
				"	"	"	IIa 0	"		41°f Set 393	Center s/Red

199

Wed - Thur.

Date Dec. 7/8 88 Observers Stoll - Tn - Yee

Dev Dec 9/10 1.57, 0.20

Emulsion Batches: IIa-Oe 118 Dec 6/88

Diffuser OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Diffuser in
~~50395~~ 46	~~HD 218393~~ KX And	~~23 02.6~~	~~+49 39~~	~~23 00~~	~~23 28~~		~~+50 14~~	Fe Ne/ Clear	60-		
50396	HD 33328 λ Eri	05 04.4 1900	-08 53	23 42	23 57	00 16 E	-08 48	Fe Ne/ Clear	90-90	11000	
50397	HD 36576	05 32.5 2000	+18 32	00 08	00 46	00 05 W	+18 30	"	90-90	11000	
50398	HD 33328	05 04.4 1900	-08 53	00 56	01 10	00 53 W	-08 48	"	90-90	11600	
50399	HD 47054	06 31.7 1900	-05 08	01 25	01 59	00 14 W	-5 13	"	90-90	10300	
50399T	Spot Calib for Pleone	50396 - 50402 (50405:06)		15 min @ 15V		04 3900 03 4300	02 4810				
50400	HD 23862	03 43.2 1900	+23 50	02 09	02 33	03 34 W	+24 05	Fe Ne Clear	90-90	10520	
50401	HD 33328 λ Eri	05 04.4 1900	-08 53	02 41	02 56	02 38 W	—	"	90-90	10800	
50402	HD 36576	05 27.7	+18 28	03 36	03 56	03 15 W	+18 30	"	90-90	5700	

At midnight, A DG Andrews called to report an apparent fire ball. It spanned 30° in Sky and headed SW @ 23:13 EST, fast: "broad."

Dec 6/88

Diffuser OUT

Spectr. Temp. 39F ..... Dome Temp./Hum. 29F/85% .. Transparency Conditions clear ..... -5/hazy 200

Focus ....394 .....

Spectr. Temp. ..29°F ..... Dome Temp./Hum. +21F/90% very very bad seeing

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		B filter in											
Fe He/ Clear	60-		V. poor	V= 7.28	B3pe K1 III	BC	G=5340 1200/50.8	BS	IIa-Oe	1	Shell star	Very poor seeing, discarded	
Fe He/ Clear	90-90	11000	"	V= 4.47	B2 IV	"	"	"	"	"	B star		ok
"	90-90	11000	"	V= 5.5	Bp	"	"	"	"	"	Be star ~~[illegible]~~	Comp Exp meter cuts 90sec FeNe = 3019	ok
"	90-90	11600	"	V= 4.47	B2 IV	"	"	"	"	"	B star	T = 35°F still set 394	ok
"	90-90	10300	"	5.42	B8	"	"	"	"	1	Be Star		ok
				~~5.00~~	~~B8p~~				IIa0-e				v.
Fe He/ Clear	90-90	10520	50 50 POOR	5.00	B8p	BC	1200/50.8	BS	IIa0-e	1	Be Star		ok
"	90-90	10800	POOR	V= 4.47	B2 IV	"	"	"	"	"	B star	T = 30°F - Set to 395	ok
"	90-90	5700	poor	V= 5.54	Bp	"	"	"	"	"	"	Clouded over	sl wk

Thurs - Fri

Date Dec 8/9/88 Observers T.h. Stefl

Emulsion Batches: Dev next night IIa O-e 1.1.8 Dec 8
1.52, 0.20
Diffuser OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50403	HD 218393	23026	+49 39	1808	2042	0230 W	+5003	FeNe Clear	60-80-60
50403T	Spot Calib for	50403-04	+50407		15min 15V	D4 3900	D3 4300	D2 4810	
50404	O And HD 217675	22573	+41 47	2051	2102	0257 W	+4220	FeNe Clear	90-90

Spectr. Temp.
Focus 3
Spectr. Temp.

Exp. Mtr.	
5013	
5000	
1800	

Dec 8

Hfuser OUT

Spectr. Temp. +32°F ..... Dome Temp./Hum. +25°F / 70% Transparency Conditions Sl. hazy

Focus 3.95

Spectr. Temp. ..... Dome Temp./Hum. +23°F / 85%

Fans on for 30 mins before 1st exp

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe Clear	60-100	5013 5000	poor	7.4	B3pe+ K1 III	BC	1200/50.8	BS	IIaO-e	1	Shell Star	cloud coming at end	vsl wk
									IIaO-e				vv
FeNe Clear	90-90	1800	soso	V= 3.63	B6p	BC	1200/50.8	BS	IIaO-O	1	Be Star	Cloudy T=+29°F	wk

Date Dec. 9/10 Observers Fds./Tn./Yee

Dec 8m@68°f Dec 9/10 Emulsion Batches: Ia-Oe 1A8 — Dec 6

Dec 8m@68°f Ia-O-e 1A8 — Dec 8

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B-filter	Spectr. Temp.
50405	HD ~~3360~~ 3240	0 ~~31.13~~ 30.6	+53 ~~20~~ 37	17:45	18 19		+54 02	Fe/Ne clear	90s/90	12000	
50406	HD 3360	00 31.4	+53 21	18 30	18 37		+53 46	n	90/90	12/100	
50407	HD 4142	00 38.8	+47 19	18:45	18 55	00 52 E	+47 44	Fe Ne clear	90-90	2250	
50407F	Focus test					00 00	+30°		90-60		

Spectr. Temp. 30 F..... Dome Temp./Hum. 22F / 79%. Transparency Conditions Clear - cloudy.....

Focus .....3.95.....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Dec 6													
Dec 8													
Clear Fe/Ne	50-60	12000	poor	5.15	B5 IV	BC	G=5430 1200/50.8	BS	IIaO-e	1	B STARS.	WRONG STAR!!! But we identified it.	ok
"	90/90	12,100	"	3.66	B2 IV	"	"	"	IIaO-e	1	B Star	Spot plate from Dec 7/8	ok
Fe/Ne Clear	90-90	2250	"	5.67	B5 V	"	"	"	IIaO-e	"	"	Clouded over	wk
	90-60								scrap IIaO	1		T=26.5° Set 395	Right on

205

Sat-Sun

1.57, 0.19 8m 60s

Emulsion Batches: Hao-e I I 8 Dec 8

Date Dec 10/11/88 Observers Fds / J.W.

DIFFUSER OUT

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
~~50408~~	HD 11415	1 47.1	+63 10	17:42	18 03	02 50E		FeNe Clear	90/90
50409	HD 20365	3 11.5	+49 51	18:15	18 56	03 15E	+50 05	"	90/90
50410	HD 20809	3 16.2	+48 51	19 06	19 46	0232E	+49 04	"	90/90
50411	HD 16908	2 37.5	+27 17	19 54	20 17	01 22E	+27 35	"	90/90
50412	HD 22951	3h 36	+33 38	20 26	20 56	0142E	+33 52	"	90/90
50413	HD 24640	03 50.0	+34 47	21 07	21 59	00 52E	+34 58	"	90/90
50414	HD 26412	04 10.1	+08 38	22 08	22 27	00 37E		"	90/90
50415	HD 26326	04 09.7	-16 39	22 36	23 40	00 33W	-16 28	"	90/90
50415T	Spot Calib for 50408-19					15min e 15V	D4 3900 D3 4300 D2 4810		
50415F	Focus test (cold one)			00 00		0 0	-16 28	FeNe Clear	120/90
	Note extra plate is prob incorrectly done focus test (may be no stellar comp)								
50416	HD 35468	05 12.8	06 15	02 42	02 44	02 35W		FeNe Clear	90/90
50417	HD 34503	05 12.8	-6°51	02 53	03 30	03 15W		"	90/90
50418	HD 32630	04 59.5	+41 06	03 41	03 46	03 47W		"	90/90
50419	" "	"	"	03 55	04 01	04 02W		"	90/

Spectr. Temp.
Focus 39
Spectr. Temp

Exp. Mtr. B Filter	
12,200	
11,999	
12,010	
12,080	
12050	
12087	
12000	
5452	
Hartmann	
12,200	
9909	
12,100	
12,100	

Dec 8

DIFFUSER OUT

Spectr. Temp. 25°f ..... Dome Temp./Hum. +15°f / 70% Transparency Conditions ... Clearing 206

Focus ... 396 .....

Spectr. Temp. +14°f ..... Dome Temp./Hum. +37°f / 90% Clouds snowy 0 hrs

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B Filter	Seeing	Pg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe/Ne Clear	90/90	12,200		~~3.38~~	B3 III	BC	1200/50.8	BS	IIaO-e	1	B STARS	thin cloud discarded cap stuck ??	blank
"	90/90	11,999	50/50	5.15	B3V	BC	"	"	"	1	"		OK
"	90/90	12,010		5.29	B5V	"	"	"	"	1	"		OK
"	90/90	12,080	OK	4.66	B3V	"	"	"	"	1	"		OK
"	90/90	12050		4.97	B0.5V	"	"	"	"	1	"	T=20°f still set 396	OK
"	90/90	12087	poor	V 5.49	B1.5V	"	"	"	"	1	"		OK
"	90/90	12000		4.29	B3IV	"	"	"	"	1	"	T=+19°f Set @ 397	OK
"	90/90	5452	very poor	5.37	B4V	"	"	"	"	1	"	Cloud	slwk
O2 4810						"	"	"	"				vw
Fe/Ne Clear	90/90					"	"	BS	IIaO old	1		T=+16°f Set 397	center vsl blue
Hartman (comp)		Hartman mask WORKED OK (Comp = N Half covered) (Stellar = South Side covered)										extra looks (also) OK.	vsl blue
Fe/Ne Clear	90/90	12,200		1.66	B2 III	"	"	BS	IIaO-e	1	B star		OK
"	90/90	9909	poor	3.60	B5III	"	"	"	"	1	"		v slwk
"	90/90	12,100		3.17	B3V	"	"	"	"	1	"		OK
"	90/	12,100	OK	"	"	"	"	"	"	1	"	T=+14°f Set 397	OK

1.54, 0.18 $8^m 68^s$

Emulsion Batches: IIa-Oe 118 Dec 11

Date Dec. 11/12 1988 Observers Shu-Yee

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50420F	Focus test			17 08	17 12			Fe Ne Clear	90-60
50420	HD 212943	$22^h 22^m.8$	+4° 12′	17 25	1906	01 45W	+04 33	Fe Ne Clear	90-90
50421	HD 3360	00 31.4	+53 21	1922	1932	00 02W	+53 45	Fe Ne Clear	90-90
50422	HD 11415	01 47.2	+63 11	1942	1949	00 59E	+63 31	Fe Ne Clear	90-90
50423	HD 20809	03 16.1	+48 51	20 00	2047	01 27E	+49 05	Fe Ne Clear	90-90
50423T	Spot calibration for 50420		-27.			15 min @ 15V	D4 3900 D3 4300	D2 4810	
50424	HD 22951	03 36.6	+33 39	2100	2135	01 00E	+33 54	Fe Ne Clear	90-90
50425	HD 23793	03 42.8	+10 50	2148	22 23	00 19E	+11 01	Fe Ne Clear	90-90
50426	HD 24640	03 50.0	+34 47	22 32	23 20	00 31W	+34 57	Fe Ne Clear	90-90
50427	HD 26912	04 10.1	+08 38	23 29	23 50	00 44W	+08 47	Fe Ne Clear	90-

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mtr.	
3411 25	
1000	
1200	
12300	
12000	
12100	

Spectr. Temp. ..15 F..... Dome Temp./Hum. 8 F / 66% .. Transparency Conditions ..Clear.....

Focus .....403.....

Spectr. Temp. ...6 F..... Dome Temp./Hum. 0 F / 71% ...

Exp. Mtr. & filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
3911 / 2500				BC	G=4238 830/40.2	BS	IIa-O dd	1	12Å/mm disp	(unfortunately too) discarded! No good in only Comp (by 2 weeks least) Fe Ne v str Exp s/str → Exp OK	
10000	poor	5.35	K0III-IV	BC	G=4238 830/40.2	BS	IIa-Oe	1	RV Std.		*
12000	O.K.	3.66	B2IV	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star	8Å/mm	OK
12300	O.K.	3.38	B3III	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star	Forgot to change spectrograph focus!!	* OK
12000	O.K.	5.29	B5V	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star		* OK
										* Blue ends out of focus	✓✓
12000	O.K.	4.97	B0.5V	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star	The last comparison was fired prematurely for 2 seconds	Exp OK Xs, some Fe Ne
12000	O.K.	5.07	B3IV+ F5V	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star	The decker is very stiff! T=3F Focus at 400	OK
12000	O.K.	5.49	B1.5V	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star		OK
12100	O.K.	4.29	B3IV	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star	SPECTROGRAPH CONTROLLER BOMBED!! Cannot fire last 90-sec comparison	OK

209

Tues

Date Dec 13 1886 Observers Th

Emulsion Batches:

ND 2.3 in

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
1468	Flat.			16:22	17:22	ND 2.3	DIFF IN	Tungsten 1/8	3600	1800
	Long FeA			1750			no ND DIFF IN	FeA Clear	1200	135 75
	Long FeNe						Diff IN	FeNe A=1/16	600	600 20
	Long DARK			1931	20 31		Shutter Closed		3600	<10 <10
	Long FeA			2344			no ND DIFF IN	FeA Clear	600	130 60
	Durk vLong	started		0035 Lights out, Shutter closed,			Cap in,		10 Ksec	3 4

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

.... ND 2.3 in

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tungsten 1/8	3600	1800				fiber spec.	1200/48.2	BS	PCS	-20°C		written Tu not yet written	
FeA Clear	1200	135 75				"	"	"	"	IA	(Coef Curve data)	written } F	
FeNe A=1/16	600	600 20				"	"	"	"	IB		written	
Closed	3600	<10 <10				"	"	"	"	IB	lights out too	written	
FeA Clear	600	130 60				"	"	"	"	IB		not written	
	10 Kse	3 4				"	"	"	"	IA		~~not written~~ / written next night	

24 pg #1

Thurs - Fri

Date .. Dec. 15/16/88. Observers ..... T.n. / MKI .....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
SP001473	Flat			16 37		0 0	ND 2.3	Tung A=1/4	3600
Fm 122.TN	HD 218525	2000 23 08.2	+44 33	17 48		00 00	+44	Int x 4	
(1474.mki)	FeA - Long					Diff IN	No ND	FeA Clear	600
	Bm Cass	1986.3 00 53.9	+64 01	18 15	18 45	00 40 E	+63 56		1800
	FeA Long (*+Previous exp)			18 50		Diff IN	No ND	FeA Clear	600
FM 123.TN	HD 224085	Seeing test		19 15		00 35 W	+28 28	Int x 4	
	HD 224085	1900 23 49.9	+28 06	19 18	20 19	01 53 W	"	1800 +	1800
	FeA Long					Diff IN	No ND	FeA Clear	600

	XFWHM	YFWHM		XFWHM	YFWHM
FM000122.TN Frame 1	5.360204	5.416870	FM000123.TN Frame 1	5.085910	4.737915
2	6.094834	5.790687	2	5.297208	4.447481
3	5.838391	5.895901	3	6.088597	5.455535
4	5.856887	4.988630	4	6.431594	5.529044

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	HD 8779	1988.5 01 25.9	-00 28	20 41	21 22	01 15 W	-00 31		[+ 600 1800]
	FeA - Long					DIFF IN	No ND	FeA Clear	600
	HD 32963	1988.5 05 07.2	+26 19	21 45	22 45	01 18 E	+26 14		3600
	FeA					Diff IN	No ND	FeA Clear	600

Spectr. Temp.
Focus.....
Spectr. Temp.

Exp. Mtr. A	Exp. Mtr. B	Se
1900	100	
39x39		pa
135	45	
25	5	V pa
120	50	(
39x39		V pa
50	8	V pa
120	65	
Note-		
diffic		
increa		
130	10	V pa
120	60	
50	6	pa
120	60	

Spectr. Temp. ..... Dome Temp./Hum. +147°/70% Transparency Conditions ..Clear.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. ...../.....

Slight NW wind - Ithaca
v gusty earlier in Day.

No Fans at beginning

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung A=1/4	360	1900	100				BC	1200/482	BS	6560Å	IB	written	SP001472.MKI Previous morning Dark written	
Int x4		39x39 pixels		poor	V= 6.34	AO	200μ Fiber Head	4 Frames	("N" mode)			opened Fast, No Fans, No aiming out ie		
FeA Clear	600	135	45				BC	1200/482	BS	6560Å	IA	written	Fans Turned on @1800	
	1800	25	5	V poor	V. ≈9	H2	"	"	"	"	IA	Obs pgm		
FeA Clear	600	120	50	(IB clearly done, but in fact in IA)						"	IB (intended)	(a bug: supperimposed on previous IA)		
Int x4		~~50~~ 39x39	8	V poor	4 frames		LT Head image	("M" mode)			~~IA~~		Fans off @1900 hrs	
1800+1800		50	8	V poor	V= 7.5	K2e	BC	1200/48.7	BS	6560Å	IA	Rci pgm	cnts as high as 90 (cloud)	
FeA Clear	600	120	65								IA			

Note - Seeing tests done, but seeing was apparently so bad as to make focussing difficult. I wonder if focus system is working right also. It seems to go in large increments sometimes and doesn't make any difference other times. Dome T = +12°F

[+ 600 1800]		130	10	V poor	V= 6.4	gG0	BC	1200/48.2	BS	6560Å	IA	std vel	down ≈ 7x from Nov 26/26 cnts as high as 220 only	
FeA Clear	600	120	60								IA			
	300	50	6	poor	V= 7.73	G2V	BC	1200/48.2	BS	6560Å	IA	std vel	down 10x from Nov 24/25 obs of same star	
FeA Clear	600	120	60				"	"	"	"	IA			

213 Page 2

Date Dec. 15/16 1988 Observers Tn./Mki./Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	HD 6413	01 04.6 2000	+39 59	23 01	00 02	04 22 W	+39 52		
	FeA			00 04					400
	HD 65583	07 59.9 1989.5	+29 15	00 19	01 19	01 30 E	+29 10		3600
	Fe-A END			01 26		Diff IN	No ND	FeA Clear	600
	Flat Field			01 46		0 0	platform	Tung A=1/4	
						~~Diff IN~~	~~No ND~~	~~FeA Clear~~	~~530~~

Spectr. Temp.
Focus.....
Spectr. Temp.

Exp. Mtr.		
90	7	4
120	60	
100	7	4
120	60	
1600	86	1

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions . Clear .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 44°F / 85%

Comparison Type/Filter	Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	~~Emulsion~~ λ	P.H.	Program	Remarks	Quality
		90	7	poor	V= 6.57	FOIVn	BC	1200/48.2	BS	6560 Å	IA	FOR KCI Telluric Source	down 5-7 x from Nov 24/25	
	400	120	60				"	"	"	"	"			
	300	100	7	poor	V= 7.0	dG 7	"	"	"	"	"	std. vel.	Channel "B" not blinking green noted @ 01 EST	
FeA Clear	600	120	60				"	"	"	"	"		some cloud / v cloudy	
Tung A=1/4		1600	86	(ND2 3IN, DiffIN)			"	"	"	"	"	On Timer		
~~FeAr Comp~~	~~500~~													

Sat - Sun

Date Dec. 17/18/88 Observers Fds - Tn

8^m 68° 1.39, 0.17

Emulsion Batches: IIa-O-e 2I8 Dec 11/88

No Diffuser, NO ND

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. & Diffr.
50428	HD 354168	5^h 19.8	+6° 15	23:05	23:07	00 45E		FeNe Clear	90-90	12100
50429	HD 34503	5^h 12.7	-6 57	23:16	23:36	0007E	-6 57	"	90-96	17000
50430	HD 36960	5^h 30.0	-6 4	23:52	0036	0032W	-6 06	"	90-90	17076
50431	HD 36959	05 30.1	-06 04	0043	0121	0117W	-6 06		90-90	12000
50431T	Spot Calib for 50428	-31			15 min @15V	D4 3900	D3 4300	D2 4810		
50431F	Focus test				no diff no ND	0 0	-	FeNe Clear	120/60	

Spectr. Temp. ...21°F... Dome Temp./Hum. +12°F/90% Transparency Conditions ..Hazy - cloudy.....

Focus .....397.....

Spectr. Temp. ...20°F..... Dome Temp./Hum. +12°F/95%

Exp. Mtr. B. Filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
12100		V= 1.64	B2 III	BC	G-5430 1200/50-8	BS	IIaO-e	1	FUS-STAR		ok
12000	Soso	3.60	B5 III	"	"	"	"	1	"		OK
12076	POOR	V= 4.78	B0.5V	"	"	"	"	1	"	RA Guiding Broken.?? (Set motion that is)	OK
12000		V= 5.67	B1 V	"	"	"	"	"	"	Some cloud Fainter of pair	OK
							IIaO-e				✓✓
				BC	1200/50-8	BS	IIaO	1		T=+20°F Set 397 Center Slit Red	
										Center more Red at Blue end.	
										(as is the case for most stars)	

Comparison Type/Filter Exp.

FeNe Clear	90-90
"	90-90
"	90-90
	90-90
12 STD	
FeNe Clear	120/50

Dec 11/88

NO ND

217

Mon./Tues.

Date Dec. 19/20 1988 Observers Eds. - Yee

1.68, 0.24

Emulsion Batches: IIa-Oe. IIF Dec. 17

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50432	HD 3360	00 31.4	+53 44	18:13	18:19		+53 44	Fe Ne clear	60/60
50433	HD 11415	01 47.1	+63 06	18:31	18:36	01 40 E	+63 31	Fe Ne clear	60-60
50434	HD 16908	02 37.5	+27 24	18:48	19:06	01 58 E	+27 35	"	60-60
50434 T	Spot calibration for 50432		-40		15 min @ 15 V	D4 3900	D3 4300 D2 4870		
50435	HD 20365	03 11.5	+49 48	19:15	19:45	01 54 E	+50 06	"	60-60
50436	HD 20809	03 16.1	+48 48	19:54	20:56	00 47 E	+49 05	"	60-60
50437	HD 22951	03 36.0	+33 36	21:07	21:25	00 37 E	+33 50	"	60-60
50438	HD 23793	03 42.7	+10 48	21:36	22:42		+11 01	"	60-60
50439	HD 32630	04 59.5	+41 06	22:52	23:06	00 10 W		"	60-60
50440	HD 27192	04 12.6	+50 36	23:23	23:57	01 16 W	+50 49	"	60-60
50440 F	Focus test			00:16		00 00	+17 36	Fe Ne clear	120-60

Spectr. Temp. 30F ..... Dome Temp./Hum. 29F/89% ..... Transparency Conditions Clear - cloudy - clear - cloudy...

Focus 394 .....

Fan was on throughout the session.

Spectr. Temp. 32F ..... Dome Temp./Hum. 33F/88% .

Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
12085	O.K.	V= 3.66	B2IV	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star	*The plate exposed before this one is spoiled: decker was down when fixing the comparison!!	*no it wasn't Exp OK
12076	O.K.	V= 3.38	B3III	"	"	"	"	"	"		OK
12027	"	V= 4.66	B3V	"	"	"	"	"	"		OK
							IIaOe				"
12018	"	V= 5.15	B3V	"	"	"	"	"	"		OK
12030	"	V= 5.29	B5V	"	"	"	"	"	"	Clouds - starts to clear up late in the exposure	v.slwk
12080	"	V= 4.97	B0.5V	"	"	"	"	"	"		OK
12010	"	V= 5.07	B3V+ F8V	"	"	"	"	"	"	Gets cloudy	OK
12046	"	V= 3.17	B3V	"	"	"	"	"	"	Thin clouds. Seeing worsened a lot.	OK
1056	poor	V= 5.50	B1.5IV	"	"	"	"	"	"	cloudy! First 60-sec comparison fired, then realized set at a wrong star!	wk
										Terminated due to cloud!	no good but interesting

Fan was on! T=32F Focus at 394

Wed. / Thur.

Date Dec. 21/22 1988 Observers KK afternoon / TN eve. + Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
SP001488.mkI	FLAT	FM000124.TN Frame 1 4.223041 (XFWHM) 3.859506 (YFWHM); 2 5.436669 4.619740; 3 4.737529 4.457376; 4 4.043280 4.270417			≈17 00	0 0	DiffIN ND 2.3	Tungc A=1/8	
1489	Fe-A Long			17 03	17 13	0 0	Diff IN / no ND	FeA Clear	1800
1492	FeA Comp.			21:02		00 00		FeA Clear	400
FM000124.TN	HD 19279	03 01	+46 55	21:21		00 01E	+47 11	39x39pix	
1493	HD 224085	23 49.9	+28 06	21:39.5	H@21:51		+28 31		
1494	Fe-A			22 06			Diffuser IN	FeA Clear	400
1495	Dark	Shutter Closed		01 26	~~Halted~~				1200
1496	Fe-A Comp.				02 38	~~02 38~~		FeA Clear	600
FM000125.TN	HD 65583	07 59.9 (1989.5)	+29 15	~~[illegible]~~	≈02 42	00 27W	+29 12		
SP001497.mkI	"	FM000125.TN Frame 1 4.510178 (XFWHM) 3.963978 (YFWHM); 2 4.731573 4.379847; 3 4.500002 4.651626; 4 4.720443 5.557730	"	02 44	03 13	W	"	Cleared between	1800
1498	"		"	03 18	03 48	01 33W	"		1800
1499	Fe-A			03 49				600sec FeA Clear	
FM 126.TN	HD 90861	10 29 19 (1989.5)	+28 38	04 03		00 40E	+28 35		
1500	"	"	"	04 05	04 35	00 07E	Fe H@ End		1800
1502	Flat Long	on timer		04 52			Tung. A=1/8		7200

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. 26F/78% Transparency Conditions Clear — Then clouding

Focus ..... 23°F/80% @ 2:30AM Light NNW breeze NW breeze during 1st seeing test.

Spectr. Temp. ..... Dome Temp./Hum. 48°F 18.4% No Fans until after 1st seeing test

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung 1=1/9		1200				BC	1200/48.2	BS	6560Å	IB	(note SP001490 deleted - accident)		
Felt Clear	2400	300 55				"	"	"	"	"		(~~Too so Fell~~ SP001491) (1 Hr Dark done too) w Ritter	
Felt Clear	400	250 50				"	"	"	"	"			
39x39 fi			poor I think	V= 6.32	A0	200μ fiber head	4 Frames	("N" mode)		Fans not turned on.			
		90 10		V= 7.5	K2e	"	"	"	"	"	Ri star	Fans turned on at ≈ 21:35 gets cloudy	
Felt Clear	900	260 60											
	700	25 25								IA			
Felt clear	600					BC	1200/48.2	BS	6560 Å	IB		Fans turned on again 02:30AM	
		(47x47 pixels)	poor	V= 7.0	dG7	200μ fiber head	4 Frames (47X47)	("N" mode)		Fans had been on for several hours, Dome Closed			Cloudy Stretch
Cleared between	1500	140 10	"	"	"	BC	1200/48.2	BS	6560 Å	IB	std. vel.	~~Acc~~ Count as high as 260.	
	1800	160 10	"	"	"	"	"	"	"	"	"	Fans off @ 0255 (Channel "B" cutout)	
6.0sec	Felt Clear	270 50				"	"	"	"	"		FH000126.TN Frame 1 XFWHM 5.397189 YFWHM 5.438971 2 5.933890 5.598940 3 5.733227 6.683179 4 5.667295 5.076225	
		(47x47)	v poor	V= 7.2	K2 II	200μ Fiber Head	4 Frames	("N" mode)			std vel		
	1800	180 10	"	"	"	BC	1200/48.2	BS	6560Å	IB	"	Cnts as high as 250	
	2200	1000 50				"	"	"	"	IB			

221

Fri Sat

Date Dec 23/24/86. Observers MF - Jn - Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
SP00 1503	Flat	While drying out dome		1702	1803	Diffuser IN	ND=2.3	TUNG H=1/8	3600s	100	45
FM000127.TN	I Peg HD 224085	23 53.9 1989	+28 29	2180 0	very gusty	00 03 W Telescope offset by wind, ie image bobbing				39	39
1504	Fe-A			18:07	1814	Diff IN	No ND	Fe-A Clear	400s	260	55
1505	II Peg HD 224085	23 53.9 1989	+28 29	18:16	1916	0116 W	+2831		3600	500	20
1506	Fe-A					Diff IN	No ND	Fe-A Clear	400	280	55
FM000128.TN	HD ~~6413~~ 6314	Seeing Test		1926		0016W	+3953			31×31	
1507	HD ~~6413~~ 6314	01 04.6 2000	+39 59	1928	1958	0048 W	+3953		1800	660	25
1508	Fe-A			1958	2005						
1509	BM Cas	00 54 1986	+64 00	2010	2110	0212W	+6357			110	10
1510	Fe-A			2112					400	260	50
1511	HD 11395	01 54.6 2000	+68 09	≈ 2122	2200	0200W	+6801			200	
SP00 1512	Fe-A at end								400		

		XFWHM	YFWHM
FM000127.TN	Frame 1	2".577963	2".272393
	2	2".581762	2".361245
	3	2".502931	2".335601
	4	2".774020	1".950198

		XFWHM	YFWHM
FM000128.TN	Frame 1	2".765801	2".456673
	2	2".457036	2".156934
	3	2".500920	2".579872
	4	2".525177	2".034749

Spectr. Temp

Focus

Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. +36°F / 67% Transparency Conditions ..Fine — v thin cloud.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +33°F / 86% [Diminishing overnight] (Gale Warning) Gusty From SW & dry & warm outside - Fans turned on and Dome opened @ 17:10 to dry out Dome

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst. 200μ Fiber	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung A:1/8	3600s	1200	45				BC/PCS	1200/48.2	BS	6560	IB		N & S piers wet at first	
e image bobbing		39X39 pixels		OK	V= 7.5	K2e	4 frames.	"N" mode	Fiber Head			Seeing test	Fans closed opened before	
Fell Clear	400s	260	55				BC/PCS ~~4 frames~~	1200/48.2 ~~("N" mode)~~	~~Fiber Head~~	6560Å	IB			
	300	500	20	"	V= 7.5	K2e	"	"	"	"	"	Rci star	Count as high as 600. Fans off @ 19 hrs	
Fell Clear	400	280	55				"	"	"	"	IB			
		31 x 31 pixels		ok	V= 6.6	FOVn	4 frames	"N" mode	Fiber Head			Seeing test	"	
	1800	660	25	"	V= 6.6	FOVn				6560Å	IB	Rci pgm Telluric Std	Not so windy now	Count as high as 880
		110	10	ok	V≈ 9	Hα	BC/PCS	1200/48.2	BS	6560 Å	IB	Oho. pgm	Count as high as 150.	
	400	260	50				"	"						
		200		ok	7.5	AO	"	"	BS	6560Å	IB	Rci pgm	Halted by cloud	
	400										IA			

223

Tues Wed

Date JAN 4/5/89 Observers Andy Udalski / Tn / Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1513	FLAT #1	} previous night					ND = 2.3	Tung H = 1/8	3600	900	35
1514	FLAT #2			22 54	23 54		"	"	3600	920	35
1515	FeA Long Comp			~~01 02~~	~~01 12~~		No ND	FeA clear	600	210	45
FM 129.TN	HD ~~6413~~ 6314	Seeing fast		4 frames "N"	mode	47 x 47 pixels	Fans were not turned on.				
1517	HD ~~6413~~ 6314	01 04.6 (2000)	+39 59	17 57	18 38	0015W	+39 51		1800 +1800	80	5
	Grating was homed and then brought back to 48.2°										
1519	Long Flat			19 21	21 21		ND = 2.3	Tung A = 1/8	7200	830	35

	XFWHM	YFWHM
FM000129.TN Frame 1	8."695743	6."429826
2	7."268360	5."856505
3	7."191131	5."418853
4	5."944562	4."598950

Spectr. Temp. ..... Dome Temp./Hum. -15°C / 70% Transparency Conditions ... Clouding in ...
no wind, but very cold
Fans turned on after 1st seeing test.

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung A=1/8	3600	900	35								IB		written	
"	3600	920	35								IA		written LongPark written to	
FoA clear	600	210	45								IB		written ~~Jan 4 9775~~	
ve not turned on.							200μ fiber head				IB		Some cloud	
	1800 +1800	80	5	Poor	N= 657	FOVn	BC	1200/482	BS	Hα	IB.	Telluric std	Much Cloud (Halted)	
Tung A=1/8	7200	830	35								IA			
												All PCS Obs backed up to this point.		

225

Mon. / Tues.

Date Jan. 9/10 1989 Observers Udalski - Yee

Emulsion Batches: 1.51, 0.20 8hr 68° IIa-Oe IF8 Dec. 17

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50441	HD 11395	01 46.9	+67 40	18:10	20:56	02 00 W	+68 00	Fe Ne Clear	60-60
50441T	Spot calibration for 50441 - 50445				15 min @	15V D4 3900	D3 4300 D2 4810		
50442	HD 48915 (Sirius)	06 45	-16 35	22:36	22:37	× 01 01 W	-16 47	Fe Ne Clear	60-60
50443	HD 35497 (β Tau)	05 20	+28 31	22:59	23:01	00 36 W	+28 30	"	60-60
50444	HD 20902 (α Per)	03 17.2	+49 30	23:20	23:21	03 00 W	+49 45	"	60-60
50445	HD 60179 (α Gem)	07 28.2	+32 06	23:38	23:41	00 50 E	+31 50	"	60-60
50445F	Focus test			23:53			+31 50	Fe Ne Clear	120-??

Spectr. Temp
Focus ... 39
Spectr. Temp

Exp. Mtr.	S
8000	
Last 6	
20000	
10350	
10500	
10070	
T=25 F	
120	

Spectr. Temp. 24 F ..... Dome Temp./Hum. -8.5C/71% Transparency Conditions Clear

Focus 39.6

Spectr. Temp. 20 F ..... Dome Temp./Hum. -10C/78%

Shutter opened & fans turned on half an hour before first exposure

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe Ne Clear	60-60	8000	V. poor	V= 7.2	A0	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Rci star	Had a lot of problem in focusing the star. The 1st hr. of exp. was very slow!! Seeing turned better, but not by much	slwk
		Last 60 sec comp gives a count of 2233							IIa-Oe				VL
Fe Ne Clear	60-60	20000	V. poor	V= -1.4	A0V	BC	G=5430 1200/50.8	BS	IIa-Oe	1		OK →	slstr
"	60-60	10350	"	V= 1.65	B7III	"	"	"	"	1			OK
"	60-60	10500	"	V= 1.79	F5Ib	"	"	"	"	1		blue end focus?	OK
"	60-60	10070	"	V= 2.0	A1V	"	"	"	"	1		A few clouds. Observer called it a night!!	vslwk
Fe Ne Clear	20-??	T= 20 F		Focus at 39.6			Fan was not turned on!						OK
		120 sec		count = 5200,			?? sec count =		6222		When mask on stellar position, forgot to set T=60 sec!!		

227

Tues./Wed.

Date Jan. 10/11 1989 Observers Fds.-Yee

1.50, 0.20 8m 68s

Emulsion Batches: IIa-Oe. IIf. Jan. 3

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50446	HD 16908	02 37.5	+27 24	18:19	18:31	01 05 E	+27 34	FeNe Clear	60-60
50446 T	Spot calibration for 50446-57.			15 min @ 15V		D4 3900 D3 4300	D2 4810		
50447	HD 3360	00 31.4	+53 24	18:45	≈18:50			FeNe Clear	60-
	~~HD 11415~~	~~01 47.1~~	~~+63 06~~					"	
50448	HD 11415	01 47.1	+63 06	19:27	19:31	00 44 W	+63 30	FeNe Clear	60-60
50449	HD 20365	03 11.5	+49 48	19:40	19:52			FeNe Clear	60-60
50450	HD 20809	03 16.1	+48 48	20:06	20:19	00 02 W	+49 05	"	60-60
50451	HD 26326	04 04.7	-16 36	20:30	21:41	00 37 W	-16 30	"	60-60
50452	HD 34503	05 12.7	-06 54	21:50	21:55	00 16 E	-6 56	"	60-60
50453	HD 35468	05 19.7	+06 18	22:02	22:03	00 31 E	+6 15	"	60-60
50454	HD 36960	05 30.1	+06 04	22:10	22:18	00 11 E	-6 05	"	60-60
50455	HD 36959	05 30.1	-06 04	22:24	22:50	00 20 W	-6 05	"	60-60
50456	HD 42690	06 06.9	-06 30	22:58	23:15	00 10 W	-6 37	"	60-60
50457	HD 45546	06 23.0	-04 24	23:25	23:46	00 24 W	-4 51	"	60-60
50457 F	Focus test			00:57		00 00	+14 36	"	120-60

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mtr.	Sec
12025	
12059	
12000	
12097	
12040	
11940	
12019	
12300	
12020	
12050	
12033	
4500	
T-32	

Spectr. Temp. 31F ..... Dome Temp./Hum. -2C / 62% Transparency Conditions Clear - intermittent cloudiness

Focus 394

Spectr. Temp. 32F ..... Dome Temp./Hum. -2C / 72%

Fans turned on 10 min. before first exposure and left on all night.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe He Clear	bo-bo	12025	poor	V= 4.66	B3V	BC	G=5430 1200/50.8	BS	IIa-0e	1	Fds		fine
													"
Fe He Clear	bo-	12059	poor	V= 3.66	B2IV	"	"	"	"	"	"	Spectrograph controller bombed before last comp. was fired! Had problems rebooting the controller. Last comp. did not fire.	
"				~~V= 3.38~~	~~B3III~~	~~"~~	~~"~~	~~"~~	~~"~~	~~"~~	~~"~~		
Fe He Clear	bo-bo	12000	poor	V= 3.38	B3III	BC	G=5430 1200/50.8	BS	IIa-0e	1	Fds		comp v. wk
Fe He Clear	bo-bo	12097	great!!	V= 5.15	B3V	"	"	"	"	"	"	comparisons only 1s/shot	"
"	bo-bo	12040	O.K.	V= 5.29	B5V	"	"	"	"	"	"		"
"	bo-bo	11940	O.K.	V= 5.35	B3V	"	"	"	"	"	"	cloudy	"
"	bo-bo	12019	O.K.	V= 3.60	B5III	"	"	"	"	"	"		"
"	bo-bo	12300	O.K.	V= 1.64	B2III	"	"	"	"	"	"		"
"	bo-bo	12020	good	V= 4.78	B0.5V	"	"	"	"	"	"		"
"	bo-bo	12050	good	V= 5.35	B3V	"	"	"	"	"	"		"
"	bo-bo	12033	O.K.	V= 5.05	B2V	"	"	"	"	"	"		"
"	bo-bo	9500	O.K.	V= 5.06	B2V	"	"	"	"	"	"	cloudy	"
"	bo-bo	T=32F Focus at 394											" discarded

229

Wed. / Thur.

Date Jan. 11 / 12 ..... Observers Fds. / Yee .....

Emulsion Batches:
1.58, 0.22 IIa-Oe. IIF. Jan. 3 .....
1.52, 0.21 IIa-Oe*. IIF. Jan. 9 .....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50458	HD 36653	05h 28.2	+14 13	21:33	21:54	00 29 E ✓	+14 12	FeNe Clear	60-60
50458 T	Spot calibration for 50458-50460			15 min @ 15V		D4 3900 D3 4300	D2 4810		
50459	HD 36819	05 29.3	+23 58	22:01	22:18	00 03 E	+23 57	FeNe Clear	60-60
50460	HD 48879	06 40.5	+67 40	22:30	22:44	00 57 E	+67 30	"	60-60
50461	HD 39291	05 46.5	-07 32.7	22:55	23:15		-07 37	"	60-
50461 T	Spot calibration for 50461-64		+66:65	15 min @ 15V		D4 3900 D3 4300	D2 4810		
50462	HD 22928	03 35.8	+47 28	23:25	23:42	03 09 W	+47 40	FeNe Clear	60-60
50463	HD 32630	04 59.5	+41.1	23:50	00:05	02 09 W	+41 08	"	60-60
50464	HD 35468	05 19.7	+06 18	00:13	00:17	02 02 W	+6 15	"	

Spectr. Temp.
Focus 39
Spectr. Temp.

Exp. Mtr.	Sec
12040	
First to se	
12040	
12030	
1255	
12013	
12007	
12118	

Spectr. Temp. 28F Dome Temp./Hum. -4°C / 82% Transparency Conditions Clear (Windy)

Focus 395

Spectr. Temp. 28F Dome Temp./Hum. -7°C / 86%

Fans turned on 10 min. before first exposure and left on for the duration of the night.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Rke Clear	60-60	12040	V. poor	V= 5.64	B3V.	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds - STAR		OK
		First 60 sec comp. gives count=2100.							IIa-Oe				V.L
Rke Clear	60-60	12040	V. poor	V= 5.38	B3V	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Fds star		OK
"	60-60	12030	V. poor	V= 5.14	B4IV	"	"	"	"	"	"		OK
"	60-	1255	ext. poor	V= 5.35	B2IV-V	"	"	"	IIa-Oe*	"	"	Extremely poor seeing, impossible to focus the star. Terminate exp. due to poor seeing, last comp. did not fire - we did not fire it.	Unk
									IIa-Oe*				V.L
Rke Clear	60-60	12013	ext. poor	V= 3.01	B5III	BC	G=5430 1200/50.8	BS	IIa-Oe*	1	Fds star		OK
"	60-60	12007	"	V= 3.17	B3V	"	"	"	"	"	"		OK
"		12118	"	V= 1.64	B2III	"	"	"	"	"	"		OK

281 Fri. / Sat.

Speedometer test

Date Jan. 13./14. 1989 Observers KK – Yee

Emulsion Batches: IIa-0e IIIf Jan. 9

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50465	HD 6582 (μ Cas)	01 01.6	+54 26	19:38	20:21		+54 47	FeNe clear	60-60-6
~~[illegible]~~								~~[illegible]~~	~~[illegible]~~
Speedometer	Capella	4 10^s	integration	21:45					
"	Flat	3 0^s.1	"					Tung clear	
"	Comparison	2^s, 1^s.5						FeNe old source	

Spectr. Temp. 30 F Dome Temp./Hum. -5 C / 76% Transparency Conditions Clear - cloudy - clear

Focus 394

Shutter opened about 15 min. before first exposure.

Spectr. Temp. Dome Temp./Hum.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe Clear	60-60	5036 – 5006	poor	V= 5.12	G5Ip	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Asm/Sp ~~KK filter~~		OK
			poor									Spectrometer test.	
Tung Clear													
FeNe old source													

233

Sun./Mon.

Date Jan. 15/16 1989 Observers KK - Yee

Emulsion Batches: IIa-O 1 18 Jan. 9

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50466	HD 6582 (μ Cas)	01 01.6	+54 26	20:31	22:00	04 17W	+54 47	FeNe Clear	40-40-40
50467	HD 47105 (γ Gem)	06 31.9	+16 29	22:13	22:15	00 56E	+16 18	FeNe clear	60-60 2219 2220
50467F	Focus test			22:30			+16 18	"	120-

Spectr. Temp
Focus ...
Spectr. Temp

Exp. Mtr.	S
5305-5112	
10134	
45s/6000	

Spectr. Temp. 34 F Dome Temp./Hum. -1 C / 82% Transparency Conditions Semi-clear

Focus 394

Spectr. Temp. 33 F Dome Temp./Hum. -3 C / 84%

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
5005 – 5012	V. poor	V= 5.12	G5 Ip	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Asm/SP ~~KK/SP~~	A few clouds, turning cloudier. Second half of exp. was very slow!	ok
10134	V. poor	1.9	A0 IV	"	"	"	"	"	"	Too hazy!	ok
4560 / 6000	T=33 F Focus at 394									(blue end much Red) Big slope center Red	

Tues~ Wed

Date JAN. 17/18/1989 Observers T.P.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1520	Flat field						ND 2.3	Tungsten A 1/4	7200s
1522	Flat Field 2hrs			1901	2101		ND 2.3	Tung A=1/4	7200
1523	FeA Long Comp	(while opening)		2247	2257		No ND	Clear FeA	600
1524	DARK	Shutter closed - most lights off							1800 ~~1800~~
1525	Pleione HD 23862	03 49 11.1 (2000)	+24 08 12	00 49	01 19	~05 00 W	+24 03	no filter needed	1800
1526	FeA Long Comp						No ND	FeA Clear	600
FM: 130.TN	HD 90861	10 29.3 (1989.5)	+28 38	01 37	(200m head view)	0118 E	+28 34		INT x4
1527	HD 90861	"	"	01 40	02 10	0045 E	"		1800
1528	FeA Long			0211			"		600
FM000131.TN	HD 90861	2nd Seeing test.		~0225		0032 E	"		Int x4
SP001529.SRV	[FLAT at End]								7200

	XFWHM	YFWHM		XFWHM	YFWHM
FM000130.TN Frame 1	2".432602	2".283886	FM000131.TN Frame 1	2".789765	2".539283
2	2".658217	2".013182	2	2".700401	2".279720
3	2".571340	2".265472	3	2".703794	2".523128
4	3".156484	2".238409	4	2".718694	2".577401

Spectr. Temp
Focus
Spectr. Temp

Exp. Mtr.	S
3840	
4 5 3940	165
330	90
~~30 90/25~~	
30 90/25	
330/90	
31x31 pixel	
800	28
270	70
31x31	
3900	180

Spectr. Temp. ..... Dome Temp./Hum. +30°F / 80% Transparency Conditions Cloudy mostly → very thin haze

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tungsten A'/a	7200	3840				200u Fiber BC/PCS	1200/4862	BS	6560				
Tung 4½	7200	A 3900 B 165	note empty			IB written - delete			Just before →	IA		written Jan 17	
Clear FeA	600	330 90								IB		" Jan 17	
	1800	~~300 90/25~~	~~ok~~									" "	
No Filter needed	1800	300-90/25	Ok	V= 5.09	B8Type	200 u Fiber BC/PCS	1200/4862	BS	6560Å	IB	Rg request	semi cloudy (counts to 1800)	
Fe 4 Clear	600	330/90				"	"	"	"	IA		Counts to 2000 in clear at 5 hrs West	
	INT x4	31x31 pinds	Ok	V= 7.2	K2 III	in "N" mode [Sky clear here; no wind]					Seeing Test	Noise "herring bone" on screen	
	1800	800 28	Ok	"	"	200 u head BC/PCS	1200/4862	BS	6560Å	IA	std vel	Fans turned on @ 01 45	
	600	270 70								IA		getting quite cloudy	
	Int x4	31x31	Ok			"N mode"	Fans left on for test				seeing test	(Cloudy, uniformly)	
	7200	3900 180								IA		(shutter on timer) written	
									Backed up on floppy Fa				

237

Fri - Sat Page #1

Date JAN 20/21 1989 Observers T.n./Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Min A	Exp. Min B
1530	FeA at Start						no ND	FeA Clear	600	280	73
1531	Pleione	2000 03 49.2	+24 08	20 18	20:48	00 45W	+24 02		1800	300	15
1532	FeA							FeA Clear	600	270	80
1533	HD 26162 (43 Tau)	1989.5 04 08.5	+19 35	21:02	21:32	01 08W	+19 31		1800	350	15
1534	FeA							"	400	270	70
1535	HD 51250	1989.5 06 55.7	−14 01.8	21:42	22:12	01 00E	−14 05		1800	600	30
1536	FeA							"	400	270	70
1537	HD 35317	1980 05 22.9	−00 53	22:27	23:27	01 48W	−00 57	"	3600	150	15
1538	FeA							"	400	250	70
FM000132.TN	HD 57263	2000 07 22.2	+39 00	23:40		00 05W	+38 57	Int x	4	47	47
1539	HD 90861	1989.5 10 29.3	+28 38	00:00	01:00	01 40E	+28 34		3600	80	10
1540	FeA							"	400	350	55
1541	HD 103095	1989.5 11 52.4	+37 47.7	01:12	01:42	02 26 E	+37 43		1800	140	13
1542	FeA							"	400	230	60
1543	HD 89449 #1	1989.5 10 19.2	+19 31.5	02 07	02 37	00 05W	+19 28		1800	600	20

Spectr. Temp. ..... Dome Temp./Hum. +10°F/83% Transparency Conditions .. Clear by 20hrs

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

very Gusty from NW
Fans turned on @ 20hrs

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst. 200μ Fiber	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe1 Clear	600	280	73				BC/PCS				IB	Seeing so	bad that focus is impossible	
	1800	300	15	vvv poor	V= 5.09	B8Vp	PCS	1200/4862	BS	6560	IB	Rg-pgm		
Fe1 Clear	600	270	80				FM000132.TN Frame 1	7.410833	6.851229		IA			
	1800	350	15	ext. poor	V= 5.50	K1III	"	2 6.103608 3 6.629784	6.241284 8.016742	"	IB	Std. vel.	Count as high as 430.	
"	600	270	70					4 7.673719	8.234054		IB			
	1800	600	30	ext. poor	V= 5.00	K2III + B9V	"	"	"	"	IB	Std. vel.	Count as high as 850.	
"	600	270	70								IB			
"	3600	150	15	ext. poor	V AB 6.11	G8	"	"	"	"	IB	Asm Spt		
"	600	250	70											
In1 1x4		47x47 pixels		extr poor	6.4	K0III	"n" mode 4 Frames			Full Moon ≈ 30° away		Seeing test	(N.NW gusty)	
	3600	80	10	ext. poor	V= 7.2	K2III	"	"	"	"	IB	std. vel.	Fans were turned off at 00:05. Count as high as 175.	
"	600	250	55								IB			
	1800	140	13	ext. poor	V= 6.45	G8Vp	"	"	"	"	IB	std vel	Impossible to focus!	
"	600	230	60								IB			
	1800	600	20	ext. poor	V= 4.79	F6Ib					IB	std vel	equals to 650	
													Dome T=-18°C	

239

Page #2

Date JAN. 20/21/89 Observers Yee / Ta

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mir. A	Exp. Mir. B
1544	FeA			02 38			no ND	FeA Clear	400	230	70
1545	HD 89449 #2	10 19.2 1989.5	+19 31.5	02 46	03 16	00 41 W	+19 28		1800	500	20
1546	FeA			03 19			no ND	"	400	220	60
1547	HD 89449 #3	10 19.2 1989.5	+19 31.5	03 28	03 58	01 25 W	+19 28		1800	600-700	25
1548	FeA			04 01			no ND	FeA Clear	400	220	60
1549.5RV	FLAT Long	on timer		04 17			ND 2.3	Tung A-1/4	7200	220	130

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ... Sl. Hazy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. -20°C / 85%

NW wind much lighter now

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe A Clear	400	230	70				BC/RCS	1200/~~4862~~	BS	6560A	IB			
	1800	500	20	vvv poor	V 4.79	F6Ib	"	"	"	"	IB	std vel	Candidate for Primary List	
"	400	220	60								IB			
	1800	500-700/25		ext. poor	V= 4.79	F6Ib	"	"	"	"	IB	std. vel.		
Fe A Clear	400	220	60				"	"	"	"	IB.			
T+G A-1/2	7200	3220	130				"	"	"	"	IB		written @ 17 hrs next night.	

Backed up to end of this floppy.

Sat – Sun

Date Jan. 21/22/89 Observers TN

200μ Fiber Head

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1550	Long Flat			17 37 36	19 38		ND 2.3	Jung A=1/4	7200	3300	140
SP001551	Long FeA						no ND	FeA Clear	600	250	84
FM000133.TN	HD 29587	04 40.8 (1989.5)	+42 06	20 23		0030 E	+42 02	Int × 4 frames		31×31 pixels	
SP001552	HD 29587	"	"	20 27	20 57	0004 W	+42 02		1800	450	19
FM000134.TN	"	"	"	20 57		00 05 W	+42 02	Int × 4	~~4 frames~~	31×31 pixels	
1553	FeA Long			21 00					600		
1554	BM Cass	00 53.9 (1986.3)	+64 01	21 18	22 18	0515 W	+63 52 ? prob +64 08		3600	80	9
1555	FeA #1								300	220	60
1556	FeA #2			22 25					300	220	65
1557	HD 11395	01 54.6 (2000)	+68 09	22 43	23 43	0540 W	+68 12		3600	160	6
1558	FeA			23 55 →					300	210	60
FM000135.TN	HD 64958	07 58.3 (2000)	+43 59	00 11		00 04 W	+43 47		Int × 4	31×31	
	FLAT on Timer	FM000133.TN Frame 1	XFWHM YFWHM 2.316253 2.031232	00 22	FM000134.TN Frame 1	XFWHM YFWHM 2.421427 1.733333			7200	3400	160
		2	2.485657 1.778571		2	2.005367 1.821515					
		3	2.414044 1.866323		3	2.521947 1.850580					
		4	2.454262 1.917800		4	2.171557 1.592657					

probably deleted, (not in directory)

Spectr. Temp
Focus
Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. +16°F / 80% Transparency Conditions Cloudy - Clearing Fast

Focus ..... [Weather Radio Says SW winds to 35 km/hr, Temp Rising overnight] From west @ 2015

Spectr. Temp. ..... Dome Temp./Hum. +16°F ... 18% 1st Opened Shutters @ 20:15 No Fans on

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung H=1/4	720	3300	140				PCS/BC	1200/482	BS	Hα 6560Å	IB			
Left Clear	60	250	84								IB			
Int x Fiber		31 x 31 pixels		OK	7.39	dG2	"N" mode,	200u Fiber Head		4 Frames		seeing test	Dome facing WSW ~~Mod~~ S SW breeze	
	1800	450	19	OK	"	"					IB	std vel	Fans turned on @ 20 30	
Int A		31 x 31 pixels		OK	"	"	"M" mode	200u head		4 frames		seeing test	Dome West now SW breeze	
	600										IB		while setting Reversed	
? prob #465	360	80	9	OK	≈9	Em Hα	FM000135.TN	Frame 1	XFWHM 2".732675	YFWHM 2".239532	IB	Obs pgm	100 cnts in clear sky Reversed thin cloud	
								2	3".387685	2".389241				
	300	220	60					3	2".883893	2".037296	IB		} Add for BM Cass	
	300	220	65					4	2".669209	2".257954	IB		} [Use with HDM395]	
	3600	160	6	SOSO	≈7.5	A0					IB	Rci pgm	Reversed still [MUCH Rec PROBLEM]	
	300	210	60				~~May be written 2 times~~			(Yes Deleted)	IB		Getting Gusty from SW (thin cloud here)	
Int A		31 x 31		OK	V 6.4	K0 III	"n" mode	200u fiber Hd		4 frames		seeing test	Light SW breeze	
	7200	3400	160								IB	Fans were	on until closeup.	

243

Sun - Mon Pg. 1

Emulsion Batches: .....

Date Jan. 22/23/89 ... Observers ..T.M./K.K.....

Note SP001560.HKT written @ 05 34 PM (Flat?)

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	S
1561	FeA Long								600		
1562	FeA short								300	300	75
FM000136 .TN	HD 13013	02 08.6	+44 27 1989	?1800		?0010E	+44°	Int x4		4 frames	
1563	~~II Peg~~ wrong star	00 53.6	?+28 26	1810	Halted		+28 26		~~1800~~	410	23
1564	FeA								30		
	~~II Peg~~ wrong again	23			Halted 1847		+28 40		~~1800~~	110	17
1566	II Peg	23 53.9	1989 +28 29	18 50	1920	03 20W	+28 30		1800	400	26
	FeA								300	290	75
1569	Polaris "B"	01 22.6	1990 +88 46	19 53	21:06	2447549.	568 -6.91	FeA Clear	1800 +1800	10	10
	FeA								300		
	— Newtonian flat tilt was slightly off — moved to eliminate light in									Rotor	
	FeA							Fe/A clear	300	310	25
1572	POLARIS "B"	01 22.6	+88 46	21 26	22:30		626 -6.92		+200 3600	86	12
	FeA							FeA clear	300	210	20
1574	HD 65583	07 59.9	1989.5 +29 15	22 45	23 15					340	20

Spectr. Temp. ..... Dome Temp./Hum. +32°F / 63% Transparency Conditions ... Clear ... v. sl haze warm

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	600					PCS/BC	1200/482	BS	6560Å	1B			
	300	300 75								1B			
Int+A		4 frames	50-50	6.40	G8	"N" mark	Fiber Head	BS			seeing test	Light SW zephyr	
	1800	460 23	OK		FM000136.TN	Frame 1	XFWHM 4".12 / YFWHM 5".04			1B	Fld	Turned Fans On @ 1806	
	30					2	3".38 / 3".72			1B			
						3	3".35 / 3".32						
	1800	110 17				4	3".17 / 3".68			1B		[Star to NW edge of finder fld when on II Pley]	
	1800	400 20	OK	27.5	K2e					1B	Rci pgm		
	300	290 75								1B			
Fe+A Clear	1800 +1800	60 10	OK	B=8.6	F		1200/423		5200Å	1B	Asm Sp tkt	Reversed	[one bin crash at beginning]
	300												
	1h	Rotica	B	—									
Fe/A clear	300	310 25											
	+200 300	80 12	improving 50-50	8.6	F		1200/423		5200Å	1B	Asm Sp		
Fe A clear	300	270 20											
		340 20	OK	7.0	dG7		1200/423		5200Å	1B	Stdvel		

#2

Date Jan 22/23/89 Observers HK/Tn./Tn

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	FeA comparison							FeA clear	300
Fm 137.Tn	HD65583	07 59.9	+29 15	23 30		00 40 E	On fiber Head		Int×4
1576	HD65583	7 59.9 1989	+29 15	23:32	23:37				300
	FeA comparison	1989.5		~~23~~:				FeA clear	300
1578 ??	HD 90861	10 29.3	+28 38	23:48	00 19	02 17 E	+28 34		1800
	FeA			00 19					300 ~~600~~
1580	HD95735	11 02.6 1987	+36 10	00 35	01 35	01 35E	+35 58		3600
	FeA			01 36					
Fm000138.TN	HD90861	10 29.3 1989.5	+28 38	01 49		00 45 E	+28 34	4 frames	Int×4
1582	HD90861	10 29.3	+28 38	01 50	02 50	00 22 W	"		3600
	FeA								300
Fm000139.TN	HD90861	10 29.3	+28 38	02 58		00 30 W	+28 35		
	FeA Long								~~300~~ 600
1585	HD 90861	10 29.3	+28 38	03 23	03 53	01 16 W			1800
FM000140	~~FeA Long~~ "	"	"			01 20 W	+28 35		Int×4

Spectr. Temp
Focus
Spectr. Temp

Exp. Mtr.	
4 3x3 frames	
300/20	
300 14	
280 17	
140 6	
3x3	
400 16	
300 21	
Same parameters	
30 20	
3x3	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ... Fine .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe 4 clear	300					PCS/BC	1200/4213	BS	5200Å			Slight SW breeze	
Int 4		31x31 4 frames	ok	V= 7.0	dG7	"N" mode		Dome T=+31°F			seeing test	[Dome pointing SSW]	
	300	300 / 20	fair	V=7.0	dG7	FM000137.TN	XFWHM YFWHM Frame 1 3.36 3.10; 2 3.18 2.76; 3 3.34 3.12; 4 3.96 ???? (see printout)				std vel	weak exposure FEST	
Fe 4 clear	300												
	1800	300 14	ok	7.2	K2 III					IA	std vel	Fans off @ 0005	
	300 ~~600~~	280 17								IB	KK		
	3600	40 6	ok	V 7.6	Mb	PCS/BC	1200/4213	BS	5200Å	IB	KK pgm	cnts to 180	
										IB			
4 frms Int 4		31x31	~~ok~~ soso			"N" mode		(Dome pointed S)			seeing test	v light SW breeze	
	3600	400 16	ok	V 7.2	K2 III	FM000138.TN	XFWHM YFWHM Frame 1 4.03 2.79; 2 5.14 3.81; 3 3.38 2.76; 4 4.01 3.54			IB	std vel	Fans on again @ 0153	
	300	300 21								IB			
		Same parameters									Seeing test	(Dome SW) vv light SSW ~~no wind~~	
	~~300~~ 600					FM000139.TN	XFWHM YFWHM Frame 1 3.63 2.98; 2 4.02 3.69; 3 3.51 3.08; 4 3.79 3.32		FM000140.TN	IB		Fans turned off @ 0305	
	1800	300 20	ok						XFWHM YFWHM Frame 1 3.26 3.15; 2 3.13 2.93; 3 2.81 2.94; 4 3.07 3.36	IB	std vel		
	Int 4	31x31	ok								seeing test	Dome no wind	

247. #3

Date Jan. 22/23 1989 Observers Tn

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1586	FeA Long				0407				600
~~1588~~ 1587	JUNG Flat						ND213in	JUNG A=1/4	7200

Spectr. Temp
Focus
Spectr. Temp

Exp. Mtr.	
250	12
1700	80

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	600	250 12								JB			
T4/B A-1/4	1200	700 80											

249 Mon–Tues Page 1 Alex Colvin

Date Jan. 23/24/89 Observers T.n. A.c.

Emulsion Batches:

* Note; Diffuser "IN" whole night. Thats OK of course

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1589	Flat		~~1989.5~~ 2000				ND 2.3		3600
Fm00014.TN	HD 13013	02 08.6	+44 27	18 09		00 00	+44 28?		1 1/2 x 4
1590/1591	FeA long →	Then a SHORT ONE					No ND	FeA Clear	600 300
1592	~~HD 224085~~ I I Peg	23 ~~53.9~~ 84.06	~~+28 29~~ +28 35 [1989.5]	18 27	19 27	W	+28 31		3600
1593	FeA		1986.3						300
1594	BM Cass	00 53.9	+64 01	19 39	Halted @ 20 01	0303 W	+63 58		~~3600~~
1595	FeA		2000						300
1596	HD 11395	01 54.06	+68 09	20 14	21 14	W	Reversed +68 13		3600
1597	FeA		1986.3						300
1598	BM Cass	00 53.9	+64 01	21 27	22 28	0530 W	Reversed +64 08		3600
1599	FeA		2000						
1600	* Pleione	03 49.2	+24 08	22 43	23 03	03 13 W	Reversed +24 14		1200
Fm 14.2.TN	HD 65583	07 59.9	1989.0 +29 15	23 20		00 44 E	+29 10	4 frame	1 x 4
SP001602	"	"	"	23 23	00 23	00 19 W	"		
Fm00143.TN	"	"	"	00 23		00 20 W	"	4 frame	1 x 4

Spectr. Temp. ..... Dome Temp./Hum. +39°F / 58% Transparency Conditions . V.sl. hazy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

11 km from SW from (Weather Radio)
Light air From SW

Exp. Mtr. A * B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
				PCS/BC	1200/48°3	(Fiber 200μ) BS	6560A				
31 x 31	OK	6.4R	G8III	"n" mode					Seeing Test	Dome pointed SW	
								IB		Fans turned on @1835	
350 25	OK	37.5	K2e	(Counts to 700 at times)				IB	~~Obs~~ Rci pgm	Field correct RA Reads 23 54.3??	
320 90				FM000141.TN Frame	XFWHM / YFWHM 1 2".84 / 2".50 2 2".96 / 2".83 3 2".78 / 2".27 4 2".55 / 2".54			IA.			
170 15	Fine	29	Hα Em					IB	Obs pgm		
400 24	Fine	7.5	A0	FM000142.TN Frame	XFWHM / YFWHM 1 1".93 / 1".65 2 1".95 / 1".43 3 1".94 / 1".59 4 2".07 / 1".43			IB	Rci pgm	Cnts to 650 noted	
300 69								IB			
180 13	Fine	29	Hα Em	FM000143.TN Frame	XFWHM / YFWHM 1 2".20 / 1".83 2 2".12 / 1".65 3 2".56 / 1".87 4 2".31 / 1".65			IB	Obs pgm	sl cloudy	
								IB		some cloud	
400-2000)	OK	V 5.09	A8Vpe	*(300sec FeA after)				IB	Rg pgm	Cloudy, partly	
31x31	Fine	V 7.0	G7	(only uniform haze)		No wind at all		H=80%	seeing test	sl cloudy T=+34°F	
400	Fine	n	n					IB	std bel	cnts to 680 Fans turned off @2335	
31x31	Fine	n	n	thicker haze		"n" mode			seeing test	no Fans on No wind Dome pointed SW	

#2

Date JAn. 23/24/89 Observers T.n

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1603	FeA			00 26		Diffuser IN	NO ND	FeA clear	300		
1604	FLAT Long	~~Stand~~	~~on Timer~~	01 01		Diffuser IN	ND 2.3	Tung A=1/8	7200	1300	80
1605	DARK			0305					7200		

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +33°F/85% Complete Cloud by 01 40 EST

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FA clear	300										1B			
1 wg A=1/8	720	1300	80								1B	but still low	written	

Note. Flat signal up from last night. Presumably Diffuser has been "in" for this whole Run. I haven't checked or changed it. → 4000

I've forgotten what an acceptable upper signal is OK or ideal for Flat.

I believe we should stay under 2 counts/sec/pixel ∴ Signal of 4000 in 1/sec/pixel

∴ Would the ≈ 4000 count Flat with A=1/4 be OK? Yes

But Flat is not "Flat" & high signal points maybe ≫ 1 cnt/sec/pixel??

720

Date JAN 24/25/89 Observers Jn./Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B
1606	FLAT 4650 cnts/sec			23 23	00 23			TUNG A=1/8	3600	450	210
1607	FeA Long			00 32				FeA Clear	600	390	75
1608 SRV	FeA			01 01					300		
Fm 144 TAT	HD 82582	09 34.3 (2000)	+46 54	01 10		00 19E	+46 53		Int x4	31x31	
1609	~~[illegible]~~ HD 11395	01 54.6 (2000)	+68 09	01 37	02 38	08 47W	Reversed +68 12		3600	100	6
1610	FeA								300		
1611	CH Cyg (HD 182917)	19 21.9	+50 02	02 53	03 53	07 30E	+50 07		3600	50	5
1612	FeA			03 54				FeA Clear	300	220	50
	HD 103095	11 52.4 (1989.5)	+37 48				+		Int x4	31x31	
	↳ Could not do the seeing test due to extreme noise on CCD; could not see the star at all!										
	Flat at Ond							FeA A=1/4	7200	430	185

Spectr. Temp. ..... Dome Temp./Hum. -2C/76% Transparency Conditions .. semi cloudy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. -6°C/85%

Wind @ 00hrs medium from NE
Fans turned on @ 00:00 Dome opened too

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. A	Exp. Mtr. B	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
TUNG A=1/8	3600	4650	210				RS/BC	1200/483	BS	6560Å	1B			
F&A Clear	600	300	75								1B	written →	Complete Cloud again	
	300										1B			
	Int x4	31 x 31		poor	6.34		"n" mode (CCD slightly noisy)				1	Pointed Dome NW	Slightly wind NNE haze - thin cloud	
	3600	100	6	poor	V= 7.5	A0	"(CCD much more noisy as night progressed)					Rai star		
	300										1B		Fans turned off @ 03 45	
	3600	50	5	poor	7.4<V<9.1	Mb					1B	DDO pgm.	Count gets higher as altitude of star increases.	
F&A clear	300	220	50								1B			
	Int x4	31 X 31		poor	V= 6.45	G8Ⅴp	"N" mode						Very noisy CCD.	
													A few clouds.	
							FM000144.TN	Frame 1	XFWHM 4".15	YFWHM 3".50				
								2	4".20	4".79				
F&A A=1/4	1200	4300	195					3	4".49	4".97				
								4	5".01	4".59				

255 Echelle Reticon Flexure Tests

Date JAN. 26/27 Observers T.n. JBL

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
2	Flat	[Echellex from Fortran 302]			1909				10 min	
68/134	Flexure test 0	0 - 01 HrL (gradually moved from 0 - 1 hr					+20 00	ThA	1 min / 1 min	1547
200	2			19 11		0200W	"		1 min	
266	3	02-03 hrs	Dome turned	1915		0300W	"		"	
332	4	03-04 hrs	Dome not moved	1918		0400W	"		"	
398	5	04-05	Dome not moved	1921		0500W	"		"	
464	05E	Moved Dome and telescope from 05W → 05E				0500E	"		"	
530	04E	Dome not moved		1930		0400E	"		"	
596	03E	" "	"	1933		0300E				
662	02E	" "	"	1936		0200E				1575
728	01	Dome moved		1939		0100E				
794	Meridian 00	Dome moved more		1943		0000				1577
860	00	Dome moved extensively				0000	+20 - +80°			1282
926	00	Dome not moved		1955			80 → +60°			1320
992	00	" "	"	1958			60° → 40°			1377
1058	00	" "	"	2001			40 → 20			1444

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	10 min						600	600 Length 50μ	5870				
Th A	1 min												
	1 min	1547											
	1 min												
	"												
	"												
	"												
	"												
	"												
		1575											
		1577											
		1282	moved in steps while dome turned										
		1320											
		1377											
		1444											

257 ~~A~~ 2

Date ..... Observers .....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp / Focus / Spectr. Temp / ~~Exp. Mu.~~ Counts
1124		moved from	20° → 0°	20 05		0 0	+00°		1min	1565
1190	Only Camera	Lock clamp slightly	tightened		(nothing moved)	0 0	+00°		"	1604
1256		moved from meridian	to 5 hrs East			0500E	00°			1552
1322		Dome not moved				0400E	00°			1544
1388		" "	"			0300	00			1520
1454		" "	"			0200E	00			
1520		" "	"	20 26		0100E	00°			1581
1586		Dome moved extensively				0000	00			1599
1652		Dome not moved		2035		0100W	00°			1614
1718		" "	"	2038		0200W	00°			1586
1784		Dome moved		2042		0300W	00			1591
1850		not moved		2045		0352W	00°			1582
1916L	FLAT	at same position		2046		"	"		600sec	1755

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	~~Exp. Mtr.~~ Counts	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	1min	1565										~~1189 Expm~~	
		1604										1189 Expmeter	
		1552	Dome moved East										
		1544											
		1520											
		1581											
		1599										1176	
		1614	Clear looking									1224	
		1586										1335	
		1591										15	
		1582											
	60sec	1755										2037	
			Ret. DAT in FORTRAN 3.2										

259 Fri Sat Page 1

Date Jan. 27/28 1989 Observers Tn.-Yee

1.74, 0.26 5m 69° 3+, 1.40, 0.14 → +4415 "Film" Hypered

2.96, 0.24 4m 70° 1.71, 0.25

Emulsion Batches:

IIIa-J.e. IA7. Jan. 27	4415 film
O.9.8.e. O2.985. Jan. 27	2.21, 0.36
IIa-Oe. I18. Jan. 9	IIa-O.e* I18 Jan. 13

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp
50468	Pleione (HD23862)	03 43.3 ~~[illegible]~~	+23 49.9 ~~[illegible]~~	18:47	19:47	00 10 W	+24 03	FeNe Clear	Diffuser 0 90-90
50468 T	Spot calibration for 50468					15 min @ D4 3900	17.5V 15V 4300	15V 4810	
50469	Pleione	03 43.3	+23 49.9	19:54	20:07	00 30 W	Diffuser IN	FeNe Clear	6-6
50469 T	Spot calibration for 50469				15 min @	D3/15V D1/7V D2/7V 4810 Hα 3450			
50470	Pleione	03 43.3	+23 49.9	20:12	20:48	01 11 W	Diffuser IN	FeNe Clear	20-20
50470 T	Spot calibration for 50470 +76				15 min @	D4 15V 4810 Reversed	15V Hα +68 00	7V 5450	
50471	HD 11395	01 46.9	+67 40	21:12	23 01	05 20 W	Diff OUT	FeNe Clear	60-60
50471 T	Spot calibration for 50471 +72				15 min @ 15V	D4 3900	D3 4300 D2 4810		
50471 F	Focus Test					0 0	Diffuser Out	FeNe Clear	200/120
50472	HD 87822	10 02.5	+32 06	01 36	02:55	00 59 W	~~Diff OUT~~	FeNe Clear	40-40-40
50473	HD 101177	11 33.5	+45 40	03:08	04:57	01 33 W	+45 05	"	40-40-40
50473 T	Spot calibration for 50473 −75 (and for plates on Jan. 28/29. 50477-50479)				15 min @ 15V	D4 3900 D3 4300	D2 4810		
50474	Polaris (HD8890)	01 22.6	+88 46	05:16	05:20	Reversed 11 28 W	+89 18	FeNe Clear	80-80
50475	Polaris	"	"	05:27	05:31	Reversed 11 39 W	"	"	80-80
50476	Polaris	"	"	05:39	05:49	Reversed 11 57 W	"	"	20-20
							Diffuser IN →		

Spectr. Temp.
Focus 39
Spectr. Temp.

Exp. Mtr. R filter
2015/1080 | 31944 | 100144 | 7245/1950 | 6000/11000 | 2276/6009 | 5834/6491 | 9244 | 9173 | 146821

Spectr. Temp. 36.F Dome Temp./Hum. -1C/80% Transparency Conditions Clear -5/hazy

Focus 393

Spectr. Temp. Dome Temp./Hum. -3°C/90%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		B filter											
FeNe Clear	90-90	20145/20650	good	V= 5.09	B8Vpe	BC	G=5430 1200/50.8	BS	IIIa-Je	1	rG pgm.	90-s comp. gives count 2837 Fans turned off @ 19:25	OK
15V 4870									IIIaJ-e.				✓
		B filter OUT										6secs FeNe = 1680cnts	
FeNe Clear	6-6	31944	OK	V= 5.09	B8Vpe	BC	G=4270 1200/40.5	BS	098e	1	rG pgm	Set 396 T=33°F	exp. good
									098e			(Backing Plate Broke)	✓
		B filter OUT										Emulsion side uncertain	
FeNe Clear	20-20	100144	O.K.	V= 5.09	B8Vpe	BC	G=4270 1200/40.5	BS	4415 film	1	rG pgm.	Focus = 396, T=33F	continuum sl. weak
7V 5450									4415 film	Note	Hα exp should	prob have been set @ 7 to 7.5 Hα strong not held flat	
		B filter IN										60sec FeNe = 1820cnts	
FeNe Clear	60-60	7246/1950	O.K.	V≈ 7.0	A0	BC	G=5430 1200/50.8	BS	IIa-0e	1	Rci pgm	Focus = 394, T=33F	slow K
									IIa-0e			Clouded OUT	✓
FeNe Clear	20-20	5000/11000				BC	1200/50.8	BS	IIaO OLD	1		Set 394 T=31°F	Fogged
FeNe Clear	40-40	276/6009	O.K	V= 6.6	F5	BC	G=4238 830/40.2	BS	IIq-0-e	1	Bartos pgm	Set 398 T=30°F	Comp string Exp OK
"	40-40	0834/6401	O.K.	V= 6.90	G0	BC	830/40.2	BS	IIa-0e*	1.	"	There is a companion to the main star. [Exp. 5]	Comp Str Str-OK
									IIa-0e*				✓
FeNe Clear	80-80	9244	poor	V=1.93	F8	BC	G=5430 1200/50.8	BS	IIa-0e*	1	Am-Sp(KK)	Focus = 394 T=30F ? Focus or Flexure	Exp OK
"	80-80	9873	poor	"	"	"	"	"	"	"	"		Comp & Focus OK Exp OK
"	20-20	s filter OUT 146821	poor	"	"	"	G=4270 1200/40.5	"	4415 film	"	"	Focus = 397 T=30F Backing Plate Broke on 1st exp. ∴ Old scrap plate used as backing	good

261

Fri. / Sat. Page 2

Date Jan. 27/28 1989 Observers Tu-Yee

Emulsion Batches: IIa-Oe* IIF Jan. 13

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
			1989.5						
~~50477~~	~~HD 103095~~	~~11 52.4~~	~~+37 47.7~~	~~06 04~~	~~06 09~~		~~+~~	~~Fe Ne Clear~~	~~Diff. out 75-~~

Spectr. Temp

Focus

Spectr. Temp

Exp. Mtr.	S
132	

Spectr. Temp. ..... Dome Temp./Hum. 22°F / 95% Transparency Conditions Clear

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Fog coming in.

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
132	poor	V= 6.45	G8Vp	BC	G=5430 1200/50.8	BS	IIa-Oe*	1	std. vel.	Focus=395 T=30F Exposure terminated due to extreme slowness!	

263.

Sat./Sun.

Date Jan. 28/29 1989. Observers Th.-Yee

Emulsion Batches:
IIa-Oe 118 Jan. 13

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter
50477	Polaris HD 8890	01 22.6	+88 46	01:55	02 14	Reversal 08 27 W	+89 18	FeNe Clear	Diff. OUT 70-70	12036
50478	HD 8890	"	"	02 20	02 32	Reversed 08 45 W	"	"	70-70	12151
	Spot plate 50473T for 50477-50479									
50479	HD 89449	10 19.2 1989.5	+19 31.5	02 43	03 54	01 51 W	+19 26	FeNe Clear	70-70	7200
50479F	Focus test	10 14.3 1900	+19 59 1900	03 59		01 51 W	+19 26	FeNe Clear	200-	15751/6749

Spectr. Temp
Focus
Spectr. Temp

Spectr. Temp. 40F Dome Temp./Hum. 2C/90% Transparency Conditions Hazy - cloudy

Focus 392

Spectr. Temp. 38F Dome Temp./Hum. 0C/90%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
FeNe Clear	Diff. out 70-70	12036	poor	1.9	F8	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Asm-Sp (KK)	FeNe	OK ✓ Fine
"	70-70	12151	"	"	"	"	"	"	"	"	"		Fine
FeNe Clear	70-70	7200	V. poor	4.79	F6IV	"	"	"	"	"	std. vel.	Getting cloudier. Exp. terminated due to clouds	Sl wk
FeNe Clear	200-	15751/6749			T=38F	Forms	=392	"	"	1		Blue end	mid OK Blue end

265

Wed./Thur.

Date Feb. 1/2 1989 Observers KK - Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	flat								120
1	α Tau (Aldebaran)	04 35.3	(1989.5) +16 29	20:08	≈20:20	00 17 W	+16 24	ThAr	60-60-
2	α Tau	"	"	≈20:21	20:41	00 38 W	"		60
	Flat			≈20:47					500
	Flat			20:56					400
	Flat (on platform, after closing)								300
	Flat	"							

Spectr. Temp
Focus
Spectr. Temp

Exp. Mtr.	S
2855/2022	
2022	
2702	
2266	
1532	
1698	

Spectr. Temp. ..... Dome Temp./Hum. -4C / 78% Transparency Conditions Semi-clear / clouds

Shutter opened @ 18:53

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	120		6"			Echelle	600/0.4011	45μ					±250
Th Ar	60-60-	25755/~~20222~~	poor	V= 0.85	K5III	"	"	"				60 sec comp. = 3018 counts	753
	60	20222	"	"	"	"	"	"				Cloudy.	698
	500	2702											1179
	400	2266											973
	300	1532											634
		1698											710

267

Fri. / Sat.

Date Feb. 3/4 1989 Observers Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	~~Flat (during day)~~									
	~~Fe-th Comp~~									
										A B
1615 SRV	Fe A			19:46	19:53			Fe A clear	400	25 70

Spectr. Temp. ..... Dome Temp./Hum. -9C/78% Transparency Conditions Clear - clouds 268

Shutter opened @ 20:50

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						~~PCS/BC~~	~~1200/48.3~~	~~BS~~		~~IB~~			
~~Fe~~	~~400~~	~~170 12~~	~~#(illegible)~~							~~IB~~			
		A B											
Fe A Clear	400	250 70				PCS/BC	1200/48.3	BS	6560 Å	IB		Before a seeing test was grabbed, it clouded over!	

269

Tues - Wed

Date Feb. 7-8/89 Observers T.n.-Yee

2.56, 0.16

Emulsion Batches:
III a-f-e-f Jan. 27
IIa-Oe Jan. 13
Diffuser Out

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mir.
FM000145.TN	HD13013	2000 02 08.6	+44 27		18 27	01 17 W	+44 21	~~FeNe~~ Clear	Int ~~8~~ x4	3131
50480	Pleione	1900 03 43.2	+23 50	18 51	18 58	01 05 W	+24 03	FeNe Clear	90 90-90	1680/2261
50480T	Spot Calib for 50480.				15 min @ D4	17.5 W 3900	15 W 4300	15 W 4810		
50480F1	G8 focus test			22 45		0 0		FeNe clear	300/150	9455/13380
50480F2	G12 focus test				22 55	0 0		"	300/150	9160/13389
50481	HD87822	10 02.5	+32 06	02 11	02 31	01 20 W	+31 35	"	30-50	1670
→ Use spot plate		50483T								

		XFWHM	YFWHM
FM000145.TN	Frame 1	3".56	3".41
	2	3".64	3".25
	3	3".76	3".80
	4	3".54	3".09

Spectr. Temp. +23°F ..... Dome Temp./Hum. +20°F / 75% H Transparency Conditions ... Fine - cloudy .....

Focus ..... 396 .....

Spectr. Temp. ... 20°F ..... Dome Temp./Hum. +10°F / 95% Fans on and Dome opened @ 18 hrs EST

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
~~Comparison Type/Filter Exp.~~ ~~Int~~ ~~Diffuser Out~~ ~~B Filter~~											
~~Fe/Ne Clear~~ 31x31	5050	6.4	G8 (II)	BC	G=5430 1200/50.8	no decker 150u	~~IIa-0 efg~~	.	"n" mode Seeing test	DOME Facing SSW Light SW breeze	
Fe/Ne Clear 150 ASIO 16800/2261	5050	5.0	B8 Type	"	"	BS	IIa-0 efg	1	Rg pgm	Cloud by 19:45. Exp. terminated due to clouds.	WK comp SLWK
							IIa-0 efg				
Fe/Ne clear 30/150	Diff out of focus			BC	G=5430 1200/50.8	BS	IIa-0 efg	1		Set 396 T=21°F	Right on center SlRed
" 30/150	" " "			BC	G=4270 830/40.2	BS	IIa-0 efg	1		Set 401 T=21°F	comp OK SLWK
" 30-50	1670	~~Poor~~ 6.6	F5	"	"	"	IIa-0e	1	Baltos pgm	[Fe/Ne 30secs = 859 cnts] Exp. terminated due to clouds.	

No Spot for 5048, If concerned, I will do one next night if it's not developed.

271

#1 Thurs-Fri Echelle Tests

Date Feb. 9/10/89 Observers J.B.L. - T.H.

Flexure Tests

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination Clamped	Comparison Type/Filter	Comparison Exp.	Exp. Mir. Echelle
2L	FLAT [Appended to Scratch File]			19 45		0700E	69 44	Tung Halide Th A	180	6000
C	Comp	Carefully and		19 49		0700E	"		60sec	9082
	Comp	steadily moved		1953		0600E	"	"	60sec	8930
	"	from E to West		1955		0500E	"	"	"	8725
	"	in 1hr Increments		1958		0400E	"	"	"	8471
	"			2001		0300E	"	"	"	8155
	"			2004		0200E	"	"	"	7813
	"			2007		0100E	"	"	"	7477
	"			2010	meridian	0000	"	"	"	6959
	"	[Echelle horizontal	@ ≈0045W]	2015		0100W	"	"	"	6921
	"			2019		0200W	"	"	"	6997
	"				West Limit	0258W	"	"	"	6898
794L	FLAT	(At same posn)	As Comp before ~~as previous~~	2025	"	0258W	"	Tung Halide	180sec	5979
860C	Comp	ONLY Dec	changed!	2032		0700E	"	"	60	8737
926C	Comp.			2041		0700E	4500	"	60	9013
992C	"			2044		0600E			60	9024

Spectr. Temp

Focus

Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. -10°C / 75% H Transparency Conditions Starry

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

· Shutters closed and heater "Rail" turned OFF for tests.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. Echelle	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung Halide	180	60000				Echelle at Telescope	600, 5870	H=600 50u	(Hightset @ .200) (width set @ .280)		JBL tests	[Dewar top up @ 1942]	3124
Th A	60sec	9082											1724
"	60sec	8930				Note JBL kept separate records of these tests.							1702
"	"	8725				— Reticon Heater was on for duration							1876
"	"	8471				and Temps stayed between ±(0.300) on meter.							1675
"	"	8155											1622
"	"	7813										Dome not turned	1638
"	"	7477										at all, but pointed	1692
"	"	6959										North west for	1683
"	"	6921										this set.	1781
"	"	6997											1765
"	"	6998											1817
Tung Halide	180sec	59179											9989
"	60	8737											1739
"	60	9013									Dome turned to (N) before start		1792
	60	9024											1747

Date ..Feb 9/10/89.... Observers ..S.B.L.-T.Q.....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	Comp (Continuatn of E-W run)			20 47		0500E	+4500	Th A	60sec	8881
	"			20 50		0400E	"			8659
				20 53		0300E	"			8555
				20 55		0200E	"			8594
				20 58		0100E	"			8674
				21 02		Meridian	"			8757
				21 06		0100W	"			8794
				21 08		0200W	"			8918
				21 12		0300W	"			9621
				21 16		0400W	"			11159
				21 19		0500 W	"			11998
				21 24	near Hor. Limit	0550 W	"			12257
1850L	Flat			21 28		0550W	"	Tungsten Halide		58141
	GLONG started (Dark Slide IN)									
	2nd GLONG after top up			00 54						

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Th A	60sec	8881				Echelle Reticon	600, 5870	600H 50μ			Flexure test	Continued	1704
	1	8659											1870
		8555											1678
		8594											1689
		8674										T = -0.129	1690
		8757							Before this exp,		Dome moved	from N ⇒ West pointing	1712
		8794											1743
		8918											1753
		9621										(From Echelle area) "Clunk" heard while moving	1750
		11159	← (Note Exp meter difference)									from 03W ⇒ 04W @ ≈ 0345U	1718
		11998										+0.250	1734
		12257											1757
Tungsten Halogen		58141											2864

. 275

Sun/Mon

1st Echelle Ret at Broken Cass in Sometime.

Emulsion Batches: .....

Date Feb 12/13/89 Observers J.B.L. T.M.

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Spectr. Temp. / Focus / Spectr. Temp.
	Flat					0 0	0° approx	Tung Halide	3 min	48K	
	Comp							ThA	1 min	19,331	
	γ Gem	1989.5 06 37.1	+16 25	20 50	20 55				5 min	27,116	
	Comp							THA	1 min		
	γ GEM	To MAX count Rate Guided Left of Slit		20 59	21 08				10 min	55,193	
	Comp	[as seen on warm Rm monitor]		21 10				ThA	1 min	9969	
	γ GEM	Guided on Slit		21 15	21 25	00 06W			10 min	12,314	
	BS 2484	1989.5 06 44.7	+12 54	21 42	21 56			THA THA	1 min 1 min	18,234	OK
	BS2484	"	"	22 06	22 19	0053W		THA	1 min 1 min	28090	OK
L	Flat							Tung Halide	180	54,061	
	ΔP GEM	1989.5 07 34.0	+31 55	22 45	Looked at but not Kept. Both stars on					slit. Spectr.	
	i UMA	1989.5 08 58	+48 05	23 11	23 27	00 14E	+48 02	ThA	1 min 1 min	43,883	OK
	BS 3579	1989.5 08 59.9	+41 50	23 36	00 08	0025W		ThA	1 min 1 min	46,266	OK
	HD 84441	1989.5 09 45.3	+23 49	00 09	00 37	00 11W		ThA	1 min 1 min	55155	OK
L	Flat (at same pos'n of star)			00 40				Tung Halide	180 sec		

Spectr. Temp. ..... Dome Temp./Hum. +22.4/.72.6 Transparency Conditions ..Sudden Clearing..... 276

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. +20.4/.85.6

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Turg Hg-Ne	3min	48K				Echelle Ref 1872	600, 5870	A=600 50μ	λ 5870Å				2739
ThA	1min	10,331											
	5min	27,116	? 5050	1.9	A0IV						Ken Sp-KK	Guided partly slit center and partly to maximize cntRate on Exp meter	729
THA	1min	"											1262
	10min	55,193										TV image good.	1149
THA	1min	9969											1281
	10min	12,314				Note - Point at which Exp meter signal is MAX is very dependant on star image focus. ?? Relative to slit posn.						TV image poor for next star	726
THA THA	1min 1min	18,234	OK	V= 3.36	F3IV							guided on ~~pseudo~~ Exp max to Right of slit.	148
THA	1min 1min	28090	OK	"	"	Image looked OK on						Guided on Slit	240
Turg Hg-Ne	180	54,061				Top upot dewar after Flat						1DU 2638	~~1564~~
Both Stars on slit, Separatn difficult to see.												J= -0.191	
ThA	1min 1min	43883	OK	V= 3.15	A7IV							J= -0.123	703
ThA	1min 1min	46266	OK	V* 3.97	F5V	*(This magnitude is approaching TV Limit for guiding)						J= +0.240	346
ThA	1min 1min	55155	OK	V= 2.98	G1						Std Vel	J= +0.080	1227
Turg Hg-Ne	180sec												2523

Backed UP as FEB1289.DAT

277 Tues – Wed

Date Feb 14/15/89 Observers Th./KK

Appended Existing RoTOAT

Emulsion Batches:

Plate No.	Object	R.A. ~~1900~~ 1989.5	Declination ~~1900~~	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.	Sec
266L	Tungsulide Flat								180sec		
332C								Th A	60sec	1244	
398S	n TAU	03 46.9	+24 04	18 30	Cloudy 44 18 54	W	+23 59			4600	
464C									60sec	1547	
630C	B PER	03 07.5	+40 55	19 03	19 49				60sec 60sec	2468	
	Tung Halide Flat								160s		
	"								180s		
	Comp after adjustments			20 08			On Moon	Th A	60sec	1579	
	Tests G & GLONG with trouble light source			20 37		0 0	Just above platform			1cnt/sec	
							23				

Spectr. Temp. ..... Dome Temp./Hum. 0°C / 66% Transparency Conditions Clouding in East

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. 1:100	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	180sec						600, 5870 .4018	H=550 50μ					
ThA	60sec	1244											
		4600	OK	28IV	B7III	Echelle 1872 Ref						Picket fence	460
	60sec	1547											1275
	60sec 60sec	2468	OK	var 2.1V								Through Cloud T=-0.145	227
	60s												457
	180s						Cross to .4012						1943
ThA	60sec	1529											2014
		cnt/sec (27,000 counts dead)				Echelle 1872 Ref	600, 5870	H=550 50μ				T= +0.143 © 2226	

279

Wed./Thur. Pg. 1 Echelle noise test + obs.

Date Feb. 15/16 1989 Observers Tn - Lee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
530 S	Noise test #1	H.	A.	19 02	19 06	00 00	Platform		
596 S	Noise test #2	00 00 HA	at start	19 10	19 18	00 08 W	-21 47		
662 S	Noise test #3	00 08 W	at start	1919	1925	00 15 W	"		
728 S	Noise test #4	00 16 W	at start	19 26	19 32	00 22 W	"		
794 S	Noise test #5	00 24 W	at start	19 34	19 41	00 31 W	"		
860 S	Noise test #6	00 32 W	at start	19 42	19 48	00 38 W	-22 00		
926 S	Noise test #7	00 40 W	at start	19 50	19 56	00 40 W	-22 00		
992 S	Noise test #8			1958	20 04				
	Topped dewar at this point (@ 20:14, T=+0.200)								
1058 S	Noise test #9			20 17	21 30				
1124 C	Comp	before 1st exp		21 46		00 W	+16 25	HA	60 sec
1190 S	HD 47105 (γ Gem)	06 37.1 1989.5	+16 25	21 55	22 18	01 07 W			
1256 C	Comp.			22 20	20 21				60
1322 L	Tung halide flat			22 23					60
1388 L	" " "			2226					120

Spectr. Temp. ..... Dome Temp./Hum. -1.C./78% Transparency Conditions. Cloudy at 1st

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

2 "B's" were done before each exp.

Shutter Rail heater turned off before tests

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		00 counts Only the generator was on.					T= +0.100		H=550 ~~600~~, 7135	1872 Ret	Echelle Ret tests		194
		10 counts ~~[illegible]~~ Clock was on.					T= -0.225						193
		300	Clock + dec guide				T= -0.230					noise seen on TV monitor when using Dec set	199
		300	Clock + RA guide				T= -0.238					Same ~~[illegible]~~ as above with RA set.	188
		320	Clock + focus				T= -0.143					Same as above with focus set.	209
		305	Clock + dome				T= +0.077						192
		300	All off.				T= -0.082						186
		305	All off, fans were turned on after start of exp.							T=	-0.231		190
		3739	Fans were on for the duration of the exp.							T=	-0.149		2207
FA	60sec	1471								T=	-0.217		1667
		16350	poor	1.9	A0 III	Echelle Reticon	600 5870 H=550	50μ		1872 Ret.	Am-Sp (KK)		1400
	60	1520											1672
	60-											T= +0.300	489
	120												1079

281

Wed./Thur. Pg. 2 Echelle obs.

Date Feb. 15/16 1989 Observers Th-Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
1454C	Comp.			22 43					60
1520S	HD 58715 (β CMi)	07 27.2 (2000)	+8 17	22 48	23 38	01 38W	+8 12		
	~~i UMaH~~	~~08 58~~	~~+48 05~~						
1586C	Comp.								60
		Topped dewar @		00:00	T=+0.340				
1652S	Noise Test 10	All off (trouble light)			Stellar mode	0 0	platform		
1718S	Noise test 11	00 00 HA	at start	01 04	01 08	00 09W	-17 28		
1784S	Noise test 12	00 12W	at start	01 11	01 17	00 18W	"		
1850S	Noise test 13	00 20W	at start	01 19	01 25	00 26W	"		
1916S	Noise test 14	00 28W	at start	01 27	01 33	00 34W	"		
1982S	Noise test 15	00 36W	at start	01 35	01 41	00 42W	"		
2048S	Noise test 16	00 44W	at start	01 43	01 49	00 50W	"		
2114S	Noise test 17	00 52W	at start	01 51	01 57	00 58W	"		
	RET.DAT	backed up as	FEB	1589.DAT					

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mtr.	Se
7938	
1/4 in 3 sec	
300	
450	
450	
450	
450	
450	
450	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions . Clear - thin cloud - snow

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. -1C/82%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	60												1629
		8938	poor	2.84 V= ~~3.15~~	B7V ~~A7V~~	Echelle Reticon	600, 5870 H=550	50μ	5870Å	1872 Ret.	Fans turned off in the middle of the exp.	T=+0.337 Becoming hazier (more like thin clouds)	834
	60												1843
		1 cnt in 3 sec		1000 counts		(End time 00:51)							582
		300	Clock was on. So was the house light.						T=+0.360			Fans were not turned on.	145
		450	Clock was on only.				"		T=+0.029			"	216
		450	Clock + dec guide				"		T=+0.039		Noise was seen on TV monitor.	"	204
		450	Clock + RA guide				"		T=-0.173		"	"	206
		450	Clock + focus				"		T=+0.261		"	"	210
		450	Clock + dome			(with shutter heater on)	"		T=+0.367		Shutter heater was turned on.	"	203
		450	Clock + dome			(with shutter heater off)	"		T=+0.360		Shutter heater was turned off.	Noise was seen on TV monitor when dome was turned	210

283 Thurs–Fri #1 Tests

Date Feb 16/17/89 Observers JBL–Th

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
2L	Flat (prompted)			17 39		0216 W	+13°	Tung Halide	180sec	2500
68	Comp			17 52		0700E	+20°	Th A	60sec	1364
134	"	Smoothly moved to 06E		17 55		0600E	"	"	60sec	1371
200	"	" "	05E	17 18		0500 E				1373
266	"	" "	04E	18 01		0400E				1389
332	"	" "	03E	1804		0300E				1388
398	"	" "	02E	1808		0200E				1389
464	"	" "	01E	1812		0100E				1384
530	"	" "	00			0 0				1393
596	"	" "	01W	1817		0100W				1409
662	"	" "	02W	1820		0200W				1447
728	"	" "	03	1822		0300W				1461
794	"	" "	04	1825		0400W				1465
860C	"	" "	05	1827		0500W				1481
926L	Flat	at Posn of Rigel						Tung Halide	180	2400

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. 20°F / 67%H Transparency Conditions ... Clear .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Note, X grating & Echele tilt; Camera focus is same for previous nights of this Run.
X Grating tilt = 0.416 Camera focus = 0.315

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Tung Halide	180sec	≈ 5000				Echelle tilt = 1.840	600, 5870	H = 500 45μ	5870Å			45μ = .283 500μH = .215 Spike @ Far Right	1339
Th A	60sec	1364									Flexure test		1546
"	60sec	1371											1511
		1373											1565
		1389											1702
		1388											174
		1389											1637
		1384	Dome turned extensively while settling HRL from 02E → 01E										1513
		1393											1584
		1409											1507
		1447											1691
		1461											1561
		1465											1512
		1481											1468
Tung Halide	180	≈4600											1186

285 #2

Date ... Feb 16/17 ..... Observers S.B.L.-Tn.....

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.	Se
992C	Comp before Rigel					E	-8 13		60 sec	1397	
10585	Rigel	05 17 (1989.5)	~~+~~8 13	1902	1909	E	-8 16	ThA	60 sec	12427	p
11905	"	"	"	1915	1922	0018 E			60 sec	12275	p
13885	α ORI	05 55 (2000)	+7 24	1932	1943			ThA	60 sec 60 sec	12250	
1520C	Comp before Top up - Then after tube Removed (1586C after)							ThA	60 sec		
	eta Tau	03 46.9 (1989.5)	+24 07	2004	2118	W	+23 59	ThA ThA	60 60	12293	p
L	FLAT	at eta Tau posn.		2124				Tungsten Halide	180		
	Comp before Sirius							ThA	60		
	Sirius	06 44.7 (1989.5)	-16 42	2137	2138	0025W	-16 48		1 min	12327	p
	Comp				2145			ThA	60 sec	1515	
2046L	Flat at Sirius posn before change Slit height								180 sec	5300	
2114L	Flat @ " " after change of Slit height								180 sec	3000	
	Comp with shorter Slit			2158	2158				90 sec	1453	
2246	Sirius	06 44.7	-16 42	2202	2204					12258	
2312C	Comp at Sirius posn								90 sec	1399	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	60 sec	1397				Echelle 1.840	600, 5870	H=500 W=45μ	5870				
THA	60 sec	12427	poor	↓ 0.08	B8Ia							centered on slit	585
	60 sec	12275	poor		"							focus to max signal on slit region	953
THA	60 sec 60 sec	12250		↓ 0.80	M2Iab								1143
THA	60 sec												
THA THA	60 60	12293	poor	↓ 2.87	B7IIIV		* (note - same star as other night)			small picket fence again		Dome Temp = +10°F +0.438 in Dewar	965
Tung Halide	180											T = +0.093 in dewar	1169
THA	60												1247
	1 min	12327	poor	↓ -1.46	A0							T = -0.130	816
THA	60 sec	1515										T = +0.060	1352
	180 sec	5300				1.840	600, 5870	H=500 W=45μ	5870			T = +0.410	1208
	180 sec	3000				"	"	H=300 W=45μ	"			H=300 → .235	1761
	90 sec	1453				"	"	"	"				1240
		12258				"	"	"	"			T = -0.061	832
	90 sec	1399										T = +0.328	1391

287 #3

Date ..... Observers .....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	γ Gem	06 37.1 (1989.5)	+16 25	22 16	22 54	0150 W	+1620	Th A Th A	90 90
	α CMi A	07 38.8	+5 15	23 07.5	23 16	W	+	Th A	90 90
	Flat before α CMi A		at γ Gem posn	22 58				Tung Halide	180sec
2840L	Flat after α CMi A				23 20				180sec
2906L	" "	"	Repeat	2325	~~2325~~				180sec
	Comp before β CMi ~~α~~		at β CMi posn,						
		~~07 26.6~~	~~+8 19~~						
	Stated GLONG after 2 "Gs"				1st G had picked	Spence	stuff		
Feb 17	tests								
S	Trouble Light,	PRISM OUT							
S	" "	PRISM IN			1832				

Spectr. Temp.
Focus.....
Spectr. Temp.

Exp. Mtr.	Sc
12777	
12749	
3400	
3700	
3650	
1437	
2400g	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.
ThA	90
ThA	90
ThA	90
	90
Tung Halogen	180sec
	180sec
	180sec

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
12277	50 50	V 1.9	A0IV	Echelle Tilt 1.840	600, 5870	H=300 W=45μ	5870		Asm Spk	T = +0.450	822
12249		V 0.38	F5IV-V								740
3400										T = -0.118 big spike at RHS	829
3200										Sl Picket fence effect + big RHS spike	804
3650										Picket again, no spike	914
M37		2.90	B8V				B CMi		Too faint on TV monitor		1321
	Backed Up @ FEB1689.DAT								(diskette missing? Pdr May 2, 1991)		
											439
4008											556

289.

Fri./Sat.

Date 17/18 Feb. 1989. Observers Tn-Yee

[IIaO Dev Feb 19 8mins @ 68° + 5"67 (see next min) By Yee including #50481]

Emulsion Batches:
IIIa-J.e. IA7. Jan. 27.....
IIaO-e. IJ8. Jan 13.. 1.82, 0.30

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
FM000147.YEE	HD 25022	(2000.0) 04 00.1	+40 00	18:53		00 30W	+39 55		
50482	HD 23862 (Pleione)	(1900.0) 03 43.3	+23 49.9	19 17	20 48	0234 W	+24 02	FeNe Clear	60-60-6
50482T	Spot calibration for 50482 -		(Replaced by 50489T. Plate 50482T was shattered!)		15 min @ D4	17.5V 15V 3900 4300	15V 4810		
50483	HD 11395	(1900.0) 01 46.9	+67 40	21 06	23 41	07 22 W	Reversed +68 13	FeNe Clear	30-30-3
50483T	Spot Cals for 50483 -88 + 50481				15min@15V	D4 03 3900 4300	D2 4810		
50484	HD 8898° (Polaris)	(1900.0) 01 22.6	+88 46	00 02	00 05	0740W	Reversed +89 20	FeNe Clear	80-80
50485	HD 8898° (Polaris)		"	00 16	00 19	07 54 W	Reversed "	"	80-80
FM000148.YEE	HD 87822	(1900.0) 10 02.5	+32 06	00 49		00 17 W	+31 34		
FM000147.YEE	Frame 1 Fr. 2 Fr. 3 Fr. 4 XFWHM 4".22 3".73 3".68 3".66 YFWHM 3".81 4".36 4".23 3".57	FM000148.YEE	Fr. 1 Fr. 2 Fr. 3 Fr. 4 XFWHM 3".94 3".42 3".27 3".20 YFWHM 4".59 3".13 2".92 3".43	FM000149.YEE	Fr. 1 Fr. 2 Fr. 3 Fr. 4 XFWHM 3".29 3".30 3".35 3".34 YFWHM 3".08 2".88 3".15 2".98	FM000150.YEE			
50486	HD 87822	(1900.0) 10 02.5	+32 06	00 56	02 52	02 20 W	+31 34	FeNe Clear	30-30-30
FM000149.YEE	HD 108100	(2000.0) 12 24.9	+42 51			00 20W	(2000) +42 51		
50487	HD 101177	(1900.0) 11 33.5	+45 40	03 18	05 30	03 27 W	+45 04	FeNe Clear	30-30-3
50488	HD 102870	(1989.5) 11 50.2	+01 49.5	05 41	05 53	03 40 W	+01 43	"	45-45
50488.F	G12 Focus test			06 01			+39°	"	70-50
FM000150.YEE	HD 144579	1989.5 16 04.6	+39 11	06 12		00 17E	+39 07		
FM000151.YEE	HD 144579	"	"	06 20		00 09E	"		

Spectr. Temp. ..31F..... Dome Temp./Hum. -11.C/69%.. Transparency Conditions ..Clear.....

Focus .....40.1..... Shutter & fans opened @ 18:00

Spectr. Temp. ..10.F..... Dome Temp./Hum. -16°C/74%.. V light NW breeze

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		31X31 pixels	poor	V= 6.9	A0 V	BC	G=4270 830/40.2	150μ	4 frames	"N"	Dome Shutters West mode 31X31 pixels	Monitor Screen quite noisy. Fld drum on back of list.	
Fe/Ne Clear	12-30-6	20K/10000	poor	V= 5.09	B8 Ipe	BC	G=4270 830/40.2	BS	IIIa-Je	1	rG pgm	Exp. meter did not work for the 1st 60-s comp. & first 6 min. stellar.	OK
							IIIa J-e		Exp. meter = 100 in 20s.			Slit can be seen very clearly on the monitor (R=19800)	
Fe/Ne Clear	3x-3x-3	2848/2301	V. poor	V≈ 1.0	A0	BC	G=4270 830/40.2	BS	IIa0-e	1	Rci pgm	Some cloud ~~Focus=390, T=15F~~	OK
									IIa0-e				
Fe/Ne Clear	80-80	12094	poor	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIa-0e	1	Amsp-KK	Focus=390, T=15F	fine
"	80-80	12228	"	"	"	"	"	"	"	"	"		fine
		31X31 pixels	S+so	V= 6.60	F5	BC	G=4238 830/40.2	150μ	4 frames	"N" mode	(Dome turned off SW)	Light NW breeze Focus=404, T=13F) Dome Temp=-15C	
								↳	Count = 30	in 1 min	½ rate with BS (Just a fast test)		
Fe/Ne Clear	3x-3x-3	5004/5003	V.V. poor	V= 6.60	F5	BC	G=4238 830/40.2	BS	IIa-0e	1	Wat pgm	Fans turned off @ 02:17	OK
		31X31 pixels	poor	V= 7.14	F2	BC	"	150μ	4 frames	"N" mode		Fans were off. Dome Facing West; no breeze at all	
Fe/Ne Clear	3x-3x-3	5000/5001	poor	V= 6.90	G0	"	"	BS	IIa-0e	1	Wat. pgm.	Fans turned on for 2nd half of exp. (@ 04:20)	OK
"	45-45	6000	V.V. poor	V= 3.61	F9 V	FM000151.YEE	Frame 1 XFWHM 3".07 YFWHM 2".95, 2 2".91 2".83	"	"	"	std. vel.		OK
"	70-50	3912/5283	Diffuser out			"	3, 2".79 3".31, 4 3".08 3".52	"	"	"		Focus = 404, T=10F	Center S1 Red
			V V POOR	V 6.66	dG8	BC	"	150μ	4 frames	"N" mode	(Shutter facing WSW)	Fans were on.	
			"	"	"	"	"	"	4 frames	"N" mode	(Shutter facing W[redacted])	Fans were off.	

	Fr. 1	Fr. 2	Fr. 3	Fr. 4
XFWHM	3".19	3".41	3".09	3".05
YFWHM	2".84	2".89	2".98	2".90

Fri./Sat.

Date 24/25 Feb. 1989 Observers Yee / KK

Emulsion Batches:
5m67° see next night IIaJ-e Jan.27 2.59, 0.18
4m69° - 098-e 02985 Jan.27 2.52, 0.41
1.59, 0.24 8m@68°F Mar 1/89 IIa-0e IIf Jan.13 IIa-0e* IIf Feb.19

Spectr. Temp.
Focus 40
Spectr. Temp.

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B-filter	See
50489	HD 23862 (Pleione)	(1900.0) 03 43.3	+23 49.9	20 00	20 47	03 00 W	+24 05	Fe Ne Clear	Diff. out 60-60-60	15025/15015	
50489T	Spot calibration for 50489 + 50482 + 50497, 50498				15 min @ D4	17.5V 3900	15V 4300	15V 4810			
50490	HD 23862 (Pleione)	(1900.0) 03 43.3	+23 49.9	21 20	21 52	04 05 W	+24 05	Fe Ne Clear	4-4-4	11000/9000	
50490T	Spot calibration for 50490				15 min @	D3/15V 4810	D1/7V Hα	D2/7V 5450			
50490F	G24 Focus test			22 05			+24 05	Fe Ne Clear	15-10	44/931	
50491	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	22 31	22 34	06 32 W	Reversed +89 15	Fe Ne Clear	80-80	12088	
50492	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	22 51	22 53	06 51 W	Reversed +89 15	Fe Ne Clear	80-80	12123	
50493	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	23 05.7	23 07.5	07 05 W	Reversed +89 15	Fe Ne Clear	80-80	12060	
50494	HD 87822	(1900.0) 10 02.5	+32 06	23 31.5	00 32	00 27 W	+31 38	Fe Ne Clear	30/30-30	5023/5045	
50495	HD 87822	(1900.0) 10 02.5	+32 06	00 49	01 29	01 25 W	+31 38	Fe Ne Clear	30-30-30	4995/5104	
50491T	Spot calibration for 50491, 50492				15 min @ 15V	D4 3900	D3 4300	D2 4810			
50496	HD 101177	(1900.0) 11 33.5	+45 40	01 47	02 43	01 07 W	+45 08	Fe Ne Clear	30-30-30	5004/5005	
	Spot plate for the new batch of IIa-0 was not done.										

Spectr. Temp. ...18F..... Dome Temp./Hum. -12C/60%. Transparency Conditions ..Clear.....

Focus ....401.....

Shutter opened @ 18:20

Spectr. Temp. ....15F..... Dome Temp./Hum. -13C/63%..

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		B filter											
Fe Ne Clear	Diff. est. 40-60-60	15025/15015	good	V= 5.09	B8Ipe	BC	G=4270 830/40.2	BS	IIIaJ-e	1	rG	T=18F, Focus=401 60s comp=1984	comp OK OK
									IIIa-Je				
Fe Ne Clear	44	11000/9000	good	V= 5.09	B8Ipe	BC	G=3600 (+24) 830/34.2	BS	098-e	1	rG	T=16F, Focus=402	Comp Str Exp OK
									098-e			Note dirty looking; Fixer?	*
Fe Ne Clear	15-10	441/931					830/34.2		098-e			T=16F, Focus=402	center VS1 blue
Fe Ne Clear	60-80	12088	good	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Aem Sp-KK	T=16F, Focus=398 Hartmann mask in stellar pos.	comp wk sl wk
Fe Ne Clear	80-80	12123	good	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIa-Oe	1	Aem Sp-KK		comp OK OK
Fe Ne Clear	80-80	12060	good	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIa-Oe*	1	Aem Sp-KK		comp OK OK
Fe Ne Clear	30/30-30	5083/5045	good	V= 6.60	F5	BC	G=4270 830/40.2	BS	IIa-Oe*	1	Waterloo pgm.	The first 5 seconds of the last comp was fired when the decker was in stellar pos.!!	TRUE
Fe Ne Clear	30-30-30	4995/5104	"	"	"	"	"	"	IIa-Oe*	"	"	Re-do since last exp. was prob. ruined!	comp OK OK
									IIa-Oe				
Fe Ne Clear	30-30-30	5004/5005	good	V= 6.90	G0	BC	G=4270 830/40.2	BS	IIa-Oe*	1	Waterloo pgm.		comp OK OK

293 Mon./Tues.

Date 27/28 Febr. 1989. Observers Ly-Yee

5m 67° day of previous nites

Emulsion Batches: IIIa-Je Jan.27

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
50497	HD 23862 (Pleione)	(1900.0) 03 43.3	+23 49.9	21 54	22 41	05 06W	+24 06	FeNe Diff. out Clear	60-60
50498	HD 86360	(1900.0) 09 52.9	+12 55	23 01	02 11	02 29W	+12 27	FeNe Clear	60-60-60
	Spot plate 50489T for these two plates (see previous page).								

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mir. B Filter	Se
1025	
2984/3484	

Spectr. Temp. 28 F Dome Temp./Hum. −9C / 82% Transparency Conditions Clear – Hazy 294

Focus 399

Shutter opened @ 21:19 Clouds in S & SW.

Spectr. Temp. 22 F Dome Temp./Hum. −10C / 91%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Fe/He Clear	Diff. at 60-60	10295	poor	V= 5.09	B8Ipe	BC	G=4270 830/40.2	BS	IIIa-Je	1	rG	60-s comp. = 1611	comp s'wk SLWK
Fe/He Clear	6-60-6	29946/30496	poor/ O.K.	V= 5.26	B9V	"	G=5430 1200/50.8	"	"	1	Ly-Bln	T=26F, Focus=395	comp s'wk OK
						~~BC~~	~~G=5430 1200/50.8~~	~~BS~~	~~IIa-Oe~~	~~1~~		~~T=22F, Focus=396~~	

295 Wed – Thurs

Date MARCH 1/2/89. Observers Tn

Emulsion Batches: 2.41, 0.33 .098-e .02-985 JAN 27/89
Dev Mar 2 @ 68°F → IIa.0-e .12.8 Feb 19/89
Tn
IIaJ-e 1.41, 0.18

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
FM 152.TN	seeing test HD40722	06 029 (2000)	+43 23	19 24		0016E	+43 22		Int x4
50499	HD 23862	03 43.2 (1900)	+23 50	1948	2018	0250 W	+24 06	FeNe Clear	5-5
50499T	Spot Cal'n for 50499				15 min @	D3/5V 4810	D1/7V Hα	7V/D2 5450	
FM 153.TN	seeing test HD 52860	07 05.2 (2000)	+47 46	2031		0011E	+47 47		Int x4
50500	HD 84441	09 40.2 (1900)	+24 14	2049 (68C → Echelle exp)	21 05	0217 E	+2348	FeNe Clear	45-45
	Echelle Flexure test #2 (during notexp)			2113 (134C), #3 @ 2142 (200C)	22:12 (266C),	22:41. (332C)		FA	each 2 min
50501	HD87822	10 02.5 (1900)	+32 06	2113	2327	0018 E	+31 39	FeNe Clear	30-30-30
50501T	Spot Cal'n for 50500-503				15 mins	15V D4 3900	D3 4300	D2 4810	
FM 154.TN	HD 87822 seeing test			2330		0015 E	+31 39		
50502	HD 8890	01 22.6 (1900)	+8846	2352	2357	0816 W	Reversal +8915		60-60
50503	"	"	"	2359	0006	0825 W	" 15		80-80
50503F	Focus test			0022		0136 W	+26		240-150
C	Reticon Corrp after move from Polaris			0022 TO	→ 0024	" W	"		2 min

Spectr. Temp. +25°F ..... Dome Temp./Hum. +21°F / 72% Transparency Conditions Partly Clear / Mostly Clear

Focus 398 ..... 616 .....

Spectr. Temp. +20°F ..... Dome Temp./Hum. +10°F / 85% Dome opened @ 19:10 No Fans at start. (15 kms/hr) medium west wind.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	Int x4	AC "N" mode 39x39 pixels	poor	V= 6.5	K0III	(monitor Quiet) (Box stable)		150μ				medium west wind (Dome west) Fans turned on @ 19:32	
Fellc Clear 7V/D2 5450	5-5	no filter ≈ 32000	poor	5.0	B8Vpe	BC	G=4270 1200/40.5	BS	098-e	1	Rg pgm	Diffuser in 5sec=1050 counts	cmts/wk Hrs/str
									098 e			Fans on during test Dome west. Med W. wind	✓
	Int x4	"N" mode 39x39	soso	V 6.34	B9	Monitor Quiet Box stable		150μ				Fans off @ 20:50 Dome T.=+15°F	
Fellc Clear	45-45 each 2min	B filter 6,100	soso	V= 2.98	G1IIab	BC	G=4270 830/40.2	BS	IIaO-e	1	Std vel	Diffuser out T=23°F Set 401	OK
FA4		+ Comp @	soso 398C 23:14			(Echelle Ret at Brown CASS)		H=600 45μ	600,5870	Tilt=1.840;	X Grating .4016	T @ 23:20 = -0.042	13898
Fellc Clear	30-30	5030/5500	soso	V 6.60	F5	BC	G 830/40.2	BS	IIaO-e	1	Wat pgm	Diffuser OUT	OK
									IIaO-e				✓
		"N" mode 39x39	soso	V 6.60	F5	monitor Quiet Box stable		150μ	(Dome SW)		slightly more windy from West	Fans still off T=20°F Set 397	
	60-60	12000	poor	2	F	BC	1200/50.8	BS	IIaO-e	1	HsmSp kk	on Polaris (23:51 Ret comp) 464C	OK
	50-50	"	"	"	"	"	"	"	"	1	"		OK
	240-120	7520/-				"	"	"	IIIaJ	1	Set 397 T=+20°F	~~Ret~~ [In 098 Exp Box]	end blue red OK
	3min	~~7500~~/					"	"				Reticon T=-0.140	14268

Reticon test backed up as MAR0189.DAT

Sun – Mon

Date MARCH 5/6/89. Observers T.M.

Emulsion Batches:
Sn 68F dev. 13 Mar. Yee IIa-D-efg ~~Jan 27~~
Dev Mar 13 8 min 0683 Tu IIa-O-E IIS-Feb 19 Diff out

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr. R Filter	Spectr. Temp.
50504	HD 23862	03 43.2	+23 50	19 55	20 38	0328 W	+24 06	Fe Ne Clear	60-60	3308	
50504F1	Focus Test					0 0		"	200/100	1240/9200	
F2	Focus Test	[to see how it matches		PH #1]	22 EST	0 0	-6°32	"			
F3	"					0 0	"	"			
F4	"					0 0	"	"			
F5	"					0 0	"	"			
	Spot plate 50505T for plate 50504 (see next page)										

Spectr. Temp. +25°f ..... Dome Temp./Hum +20°f / 80% Transparency Conditions hazy - cloudy - very cloudy

Focus ... 395 .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
3308	poor	5.0	B&V pe	BC	G=5430 1200/50.8	BS	IIa-D Rg	1	Rg pgm	Getting too cloudy 60 sec FeNe=1600 counts	weak
6260/9200				"	"	"	IIaO e	1		big slope	Blue and Red
				"	"	"	"	5		blue si Red slight slope	cent vs Red
				"	"	"	"	2		T=23°f set 395	big slope
				"	"	"	"	4			ok
				"	"	"	"	3		fair slope	center blue

Comparison Type/Filter Exp.

Fe/Ne Clear 60-60

" 200/100

Eyeballing tests, I would say PHs 1, 5, 4 are pretty close to each other. PHs 5 and 4 may even have less slope than PH1

299 Tues./Wed.

Date 7/8 Mar 1989 Observers Tn/Yee

5m 68F dev. 13 Mar. YEE
4m @68F du Mar25 Tn
Dev MAR13 8min @68F Tn

Emulsion Batches:
IIIa-Je 147 [redacted] Mar 2 2.75, 0.19
0.98-e 02985 Jan 27 2.10, 0.35
IIa-Oe 118 Feb 19 1.52, 0.22

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
Deleted the blank frame & renamed FM000156.TN									
FM000155.TN	HD 40722	(2000.0) 06 02.9	+43 23	18 55		00 18 E	+43 22		Diffuser out
50505	PLEIONE HD 23862	(1900.0) 03 43.3	+23 49.9	19 04	20 41	03 38 W	+24 05	FeNe Clear	80-80-80
50505T	Spot Cal'n for 50505 (see below)				15 min @ D4	17.5V 3900	15V 4300	15V 4810	
50506	HD 23862	"	"	20 51	21 21	04 18 W	+24 05	FeNe Clear	Diff IN 6-6
50507	HD 87822	(1900.0) 10 02.5	+32 06	21 40	23 29	00 08 W	+31 38	FeNe Clear	Diff. OUT 30-30-30
FM000157.TN	" Seeing Test			23 36		00 14 W	+31 38		
FM000158.TN	HD 87822 Seeing test	(1900.0) 10 02.5	+32 06	23 42		00 20 W	+31 38		
50508	HD 101177	(1900.0) 11 33.5	+45 40	23 49	01 01	00 05 W	+45 08	FeNe Clear	30-30
50508F	Focus test			01 08		"	"	"	200/100
50505T	Spot calibration for [redacted] 50505 + 50504 + 50509 + 50516 + 17, 23-25					15 min @ D4	17.5V 3900	15V 4300	15V 4810
50507T	Spot calibration for 50507, 50508 + 50510				15 min	@ 15V D4 3900	D3 4300	D2 4810	
~~50506T~~	~~Spot calibration for 50506~~								
50506T	Spot calibration for 50506 + 18				15 min @	D3/15V 4810	D1/7V Hα	D2/7V 5410	

This was probably exp. for 50 min. as the timer didn't work!

Spectr. Temp
Focus
Spectr. Temp

Exp. Mtr. & Filter	S
31x31 plates	
18307/13090	
Note no filter	
4140	
B filter 5350/5217	
31x31	
31x31 pinol	
495/e-dd	

Spectr. Temp. 13F Dome Temp./Hum. -13c / 60% Transparency Conditions Clear – cloudy

Focus 400

Spectr. Temp. +9.5°F Dome Temp./Hum. -17c / 65% wind (NE 15 kms/hr from News)

Fans on and Dome opened @ 18:10

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		B filter 31x31/pixels ~~No Field~~	5050	V= 6.5	K0III			150μ	4 frames	"N" mode (1 blank) Integrator X 4		Dome faced W 5W Light NE breeze	
FeNe Clear	18-8-93	18307/18090	so so to O.K.	V= 5.09	B8Vpe	BC	G=5430 1200/50.8	BS	IIIaJ-efg	1	Rg pgm	FeNe 80sec = 2553 adc	O.K.
		Note	1 step	of 3900	OK,	But Dark	Slide	stayed in	IIIa-Je	when	attempting	to start Ind exp ∴ No Spots tonight	
FeNe Clear	Off/IN 6-6	no filter 41440	V. poor	V= 5.09	B8Vpe	BC	G=4270 1200/40.5	BS	098-e	1	Rg pgm	T= +12°F Set 402	OK
FeNe Clear	24-OUT 30-30-30	B filter 5250/5217	V. poor	V= 6.00	F5	BC	G=4238 ~~830~~/40.2	BS	IIa-0e	1	Wat. pgm	T= 10F Set 402	O.K.
		31x31		"	"		Box slightly dbl.	150μ	4 frames	"N" mode	Integrator X 0		
		31x31 pixel		"	"		Slight horiz box dblring	150μ	4 frames	"N" mode	Integrator X4	Moderate ENE breeze Dome 5W facing	
FeNe Clear	30-3c	4450/ended	V.V. poor	V= 6.90	G0	BC	G=4238 ~~830~~/40.2	BS	IIa-0e	1	Wat. pgm	Fans turned off @ 23:54 Exp. terminated due to clouds.	O.K.
"	200/100					"	"	BS	IIIas-e	1		T= +9.5°F Set 402	
									IIIaJ-e			Exp. on 12 Mar. (Sun.)	
									IIa0-e			Exp. on 12 Mar. ~~(Sat.)~~ (Sun.)	
									098-e			Exp. on 12 Mar. (Sun.)	✓

301

Wed./Thur.

Date 8/9 Mar. 1989 Observers Tn./Yee

Emulsion Batches:

5m68F dw. 13 Mar. YEE IIIa-Je. 1A.T. Mar. 2 (1.55, 0.22 Dev MHAL)

IIa-Oe. 1I.P. Feb. 19

IIa-Oe* 1I.P. Mar. 6 (8 mins @ 68°F T.)

SPOT Sensitometer not available

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
FM000159.TN	HD 40722 Seeing test	(2000.0) 06 02.9	+43 23	19 00		00 11E	+43 22	Diff out	
50509	HD 23862	1900 03 43.3	+23 50	19 09	19 50	02 51W	+24 06	FeNe Clear	80-80
FM000160.TN	HD 87822 Seeing test	(1900.0) 10 02.5	+32 06	22 57		00 21E	+31 39		
50510	HD 87822	(1900.0) 10 02.5	+32 06	23 04	00 04	00 47W	+31 39	FeNe Clear	30-30-30
50511	HD 101177	(1900.0) 11 33.5	+45 40	00 13	01 55	01 06W	+45 08	FeNe Clear	30-30-30
50512	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	02 13	02 17	11 02W	Reversed +89 15	FeNe Clear	80-80
50513	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	02 23	02 37	11 22W	Reversed +89 15	FeNe Clear	80-80
50514	α Boo HD124897 HD ~~[illegible]~~	14 11.1	+19 42	02 49	02 50	00 33E	+19 14	FeNe Clear	80-80
50514F	Focus test	near α Boo (Drift on)		02 56	03 02	00 21E	"	FeNe Clear	240/120
50515	HD 122742	(1900.0) 13 58.6	+11 16	04 01	05 21	02 09W	+10 49	FeNe Clear	60-60-60
50516	HD 159561 (α Oph)	(1900.0) 17 30.3	+12 38	05 33	05 37	01 07E	+12 33	FeNe Clear	120-120
FM000161.TN	HD 153399	1900 16 56.6	+43 40	05 52		00 15E	+43 41		
50511T	Spot calibration for 50511-15, 19-22				15 min @ 15V	D4 3900	D3 4300	D2 4810	
	Spot plate 50505T for plates 50509, 16 (see previous page).								
	Spot plate 50507T for plate 50510 (see previous page).								

Spectr. Temp	Focus	Spectr. Temp	Exp. Mtr.	S
			31x31 pixels	
			23900	
			31x31 pixels	
			5021/5073	
			4999/4997	
			10093	
			9992	
			10,500	
			6172/9417	
			4531/4534	
			34742	
			31x31	

Spectr. Temp. 20 F Dome Temp./Hum. -6C / 71% Transparency Conditions Clear - cloudy - clear

Focus 400 - 397

Spectr. Temp. Dome Temp./Hum. -10C / 90%

Shutter opened & fans turned on @ 18:25
Shutter opened again @ 22:48, fans were not turned on.

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
Diffract		31 x 31 pixels	OK	V= 6.5	K0 III			150μ	4 frames Integrator X4	"N" mode		Dome faced W. Light, steady E. breeze	
Fe He clear	80-80	B filter 23900	OK	V= 6.09	B8Vpe	BC	G=4238 830/40.2	BS	IIIa-J-Sky	1	Rg pgm	clouding in from East	O.K.
		31 x 31 pixels		V= 6.60	F5			150μ	4 frames Integrator X4	"N" mode		Temp. = -8C, Humidity = 81% Dome faced SW.	
Fe He Clear	30-30-30	5001/5073	O.K.	V= 6.60	F5	BC	G=4238 830/40.2	BS	IIa-Oe	1	Wat. pgm.	T=21F, Focus = 400	O.K.
Fe He Clear	30-30-30	4999/4998	O.K.	V= 6.90	G0	"	"	"	IIa-Oe*	1.	Wat. pgm.	Fe He 30sec = 952 cnts	O.K.
Fe He Clear	80-80	10093	O.K.	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIa-Oe*	1	Atm Sp - KK	T=19F, Focus = 397	O.K.
Fe He Clear	80-80	9992	O.K.	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIa-Oe*	1	Atm Sp - KK	Clouds.	O.K.
Fe He Clear	80-80	10,500	OK	1.19	K2IIIp	BC	G=5430 1200/50.8	BS	IIa-Oe*	1	std. vel.	cloud.	O.K.
Fe He Clear	240/120	6172/9417				BC	G=5430 1200/50.8	BS	IIIa-Je	1		Set 397 T=18°F	
Fe He Clear	60-60-60	4531/4534	poor	V= 6.21	G8V	BC	G=5430 1200/50.8	BS	IIa-Oe*	1	Atm Sp - KK	Quite hazy.	O.K.
Fe He Clear	120-120	34742	poor	B= 2.2	A5 III	BC	G=5430 1200/50.8	BS	IIIa-Je	1	"		O.K.
		31 x 31		7.6	G5IV	"		150μ	4 frames Double boxes	"n" mode	Integrator X4	Dome facing West	
									IIa0-e*			Exp. on 12 Mar. (Sun.)	

Thurs Fri

Echelle Reticon tests.

Date 9/10 Mar 1989 Observers SBL/JTa

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	Tests of effects	of Dewar Toppup		1940	20.	Then left at meridian			—
	" " "	Weights added		After going E 1hr. →		0 0	+52 56		
	Beta								
8605	B GEM	1989.5 07 44.7	+28 03	21 03	21 18		00 08W	Th A	1476 10sec
9260	Possible movement of Echelle "Vibration" when adjusting CCD camera focus.								
10585	B GEM	Restart of Flexure tests.		21 52	2205		W		
	Th A			2206					10sec
11905	B GEM	1989.5 07 44.7	+28 03	2207	2220				
	Th A								
13225	B Gem			2225	2236				
	Th A								
15454S	B Gem			2240		+ Th A at end.			
15861	Flat with slit widened			2335					900
16521	Flat with slit narrowed			2356					800

Spectr. Temp. ..... Dome Temp./Hum. 6°C/H=60% Transparency Conditions ... Clear .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
					X grating 0.4 016			H=650μ = .200 on micrometer 45μ-				echelle Tilt 1.840	
		1st one	no weight, 2nd 1 8" dia wt,									JBL keeping notes.	
Th A	1476 1 sec	14140		V= 1.14	Row 6				std Vel			1446 cntr for Th A comps	2239
		10710					Note	JBL kept the detailed notes.					4316
	1 sec	73											1443
		11867											4575
		83											1476
		12557											3311
													1389
	900						slit set to .015 for Flat						5777
	800-						slit set to .200						3563
											not backed up? (PDR May 2/3 91)		

305 Fri. / Sat. Page 1 Echelle Retica obs.

Date 10/11 Mar 1989 Observers Eds - Th/Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
68 S	Comp. (white topping up)								20	
134 S	Comp.			18 56					20	22
200 S	Sirius	(1900.0) 06 40.8	−16 35	19 21	19 50					
266 C	Comp.			19 51					20	19
332 S	Sirius	(1900.0) 06 40.8	−16 35	19 52	19 56		−16 36			8638
398 C	Comp.			19 57					20	20
464 C	Comp.			20 00					20	
530 S	γ Ori	(1989.5) 05 24.6	+06 20.5	20 01	20 14	01 46 W	+06 19			8493
596 C	Comp.			20 15					20	119
662 S	γ Ori	(1989.5) 05 24.6	+06 20.5	20 16	20 24	01 56 W.	+06 19			9019
728 C	Comp.			20 25					20	161
794 S	γ Ori	(1989.5) 05 24.6	+06 20.5	20 26	20 45	02 17 W	+06 19			3049
860 C	Comp.			20 45					20	191
926 S	Flat			21 03						
992 S	Flat			21 05	21 07					8500
1058 S	Flat			21 07						8500

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. -3 C / 70 %. Transparency Conditions Some clouds - cloudy.....

Shutter opened @ 17:35

Focus .....

Fans turned on @ 18:30

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	20		Cross grating Echelle tilt		tilt setting 0.5202 setting = 1.840 (actual reading = 1.844)		H = 400 μ (= 0.225 setting)	80 μ (= 0.269 setting)			T ascending from -0.130 → +0.215		
	20	22							4480 Å			Pours to the right when stars is above slit.	3178
			poor	V= -1.46	A1V							T = -0.031 In & out of clouds.	2949
	20	19											3353
		8638	poor	V= -1.46	A1V							~~[illegible]~~	2229
	20	20											3321
	20												3471
		8493	O.K.	V= 1.64	B2III								2424
	20	119											3527
		9019	O.K.	V= 1.64	B2III								2592
	20	161											3366
		3049	O.K./ poor	V= 1.64	B2III							Clouds.	931
	20	191											3681
													1404
		8500											2301
		8500											2363

307

Fri./Sat.

Page 2

Date 10/11 Mar. 1989. Observers Eds. – Tu/Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.	Se
1124 S	Flat									8300	
1190 S	Flat									8500	
1256 S	Flat									10000	
1322 S	Flat									10000	
1388 S	Flat									10000	
1454 S	Flat									10000	
1520 S	Flat									3500	
1586 S	"									"	
1652 S	"									"	
1718 S	"									"	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions . Cloudy 308

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
8500											2390
8500											2393
10000											2826
10000											2892
10000											2876
10000											2886
3500											1092
"											980
"											971
"											985

309

Sun. / Mon.

Date 12/13 Mar. 1989 Observers Tn / Yee

Emulsion Batches:

5m 68F dev. 13 Mar. YEE IIaJ-e 1A7 Mar. 2

4min Dev MAR 24 @68°F Tn 098-e 02985 Jan. 27

Dev MAR 13 8mins @68°F Tn IIaO-e 118 Mar. 6

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
FM000162.TN	HD 40722 Seeing test	(2000.0) 06 02.9	+43 23	18 59		00 03 W	+43 22		Diff. OUT
50517	HD 23862 (Pleione)	(1900) 03 43.2	+23 50	19 07	20 46	04 02 W	+24 06	FeNe Clear	80-80-80
50518	HD 23862 (Pleione)	(1900.0) 03 43.2	+23 50	20 54	21 28	04 44 W	+24 06	FeNe Clear	Diff. IN 6-6
50519	HD 87822	(1900.0) 10 02.5	+32 06	21 38	23 52	00 50 W	+31 39	FeNe Clear	Diff. OUT 30-30-
FM000163.TN	" Seeing Test			23 58		00 55 W	"		
50520	HD 101177	(1900.0) 11 33.5	+45 40	00 03	02 28	01 57 W	+45 09	FeNe Clear	30-30-30
FM000164.YEE	HD 120245	(2000.0) 13 47.5	+37 53	02 42		00 02 W	+38 55		
50521	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	02 57	03 01		Reversed +89 15	FeNe Clear	80-80
50522	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	03 07	03 13	12 13 W	Reversed +89 15	FeNe Clear	80-80
50523	HD 137909	(1900.0) 15 23.7	+29 27	03 25	03 55	00 27 E	+29 07	"	80-80-80
50524	HD 124897	14 11.1	+19 42	04 06	04 12	00 59 W	+	"	120-50
50525	HD 159561 (α Oph)	(1900.0) 17 30.3	+12 38	04 22	04 30	02 03 E	+12 33	FeNe Clear	120-120
FM000165.YEE	HD 144579 Seeing test	~~(2000.0)~~ (1989.5) 16 04.6	+39 11	04 46		00 13 E	+39 09		

Spot plate 50511T for plates 50519-22.

~~Spot plate 50505T for plates 50517, 23-25~~

Spot plate 50506T for plate 50518

Spectr. Temp. 29 F Dome Temp./Hum. -6 C / 61 % Transparency Conditions Clear - a few clouds

Focus 395

Spectr. Temp. 19 °F Dome Temp./Hum. -9 C / 74 %

Shutter opened @ 17:53
Fans turned on @ 18:10
Fans turned off @ 01:30

Aurora borealis visible: mainly red & green.

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
B filter 39 X 39 pixels	ok to poor	V= 6.5	K0III			150μ	4 frames Integrator	"N" mode X4		"Box" showed double vertical frame. Dome faced W, light N-breeze.	
15005/15002	O.K.	V= 5.09	B8Vpe	BC	G=5430 1200/50.8	BS	IIIaJ-e	1	rG		comp. O.K. slightly weak
B filter 30017	poor	V= 5.09	B8Vpe	BC	G=4270 1200/40.5	BS	098-e	1	rG	T=25F, Focus=398	OK
B filter 5007/5005	ext. poor	V= 6.60	F5	BC	G=4238 830/40.2	BS	IIaO-e	1	Wat-pgm	T=25°F Focus=398	O.K.
39x39		V= 6.90	G0			150μ	4 frames Integrator	"N" mode X4.		Doubled "box". Dome faced W.	
4998/5002	ext. poor	V= 6.90	G0	BC	G=4238 830/40.2	BS	IIaO-e	1	Wat. pgm.	Very intense auroral display tonight, absolutely spectacular!!!	O.K.
31X31		V= 6.95	K2III			150μ	4 frames Integrator	"N" mode X4		Dome faced W. Calm.	
10117	poor	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIaO-e	1	Asm Sp -KK	T=20F, Focus=398	O.K.
10192	poor	V= 1.9	F8	BC	G=5430 1200/50.8	BS	IIaO-e	1	Asm Sp - KK	Aurora still very bright	O.K.
7959/18400	OK	395	F0p	"	"	"	IIIaJ-eg	1	AsmSp-KK	see Remo 80 cts = 2500 cts	O.K.
31000		1.19	K2IIIp	"	"	"	IIIa-e	1.	Std vel	Some cloud	O.K.
35158	poor	B= 2.2	A5III	BC	G=5430 1200/50.8	BS	IIIaJ-e	1	Asm Sp-KK	Clouds to the south.	O.K.
[redacted] 31x31	OK	V= 6.66	dG8			150μ	4 frames Integrator	"N" mode X4		Slightly hazy here	

311

Sat./Sun.

Date 18/19 Mar. 1989 Observers Yee - Bt Dev 8min 0657 MAR 25 5m 68°

Emulsion Batches:
IIaJ-e 1A7 Mar. 2 2.80, 0.20
IIaO-e 1Z8 Mar. 6 1.48, 0.20

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Exp.	Exp. Mtr.	Spectr. Temp.
50526	HD 23862 (Pleione)	(1900.0) 03 43.2	+23 50	19 47.5	21 21	05 01W	+24 05	FeNe Clear	80-80-80	15013/1917	
50526T	Spot calibration for 50526, 27, 31, +33				15 min @ D4	17.5V 3900	15V 4300 15V 4810				
	~~HD 86360~~							~~FeNe Clear~~	~~80~~		
50527	HD 47105 (γ Gem)	(1900.0) 06 31.9	+16 29	21 57.5	22 02.5	02 55W	+16 24	FeNe Clear	120 -120	35126	
50528	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	22 43.5	22 46.5	08 12W	Reversed +89 15	FeNe Clear	80-80	10004	
50529	HD 8890 (Polaris)	(1900.0) 01 22.6	+88 46	23 04.2	23 10	08 37W	Reversed +89 15	FeNe Clear	80-80	10026	
50530	HD ~~86360~~ 102870	(1989.5) 11 50.2	+01 49	23 48.5	00 01	00 17E	+01 48	FeNe Clear	80-80	10008	
50528T	Spot calibration for 50528, 29 +32				15 min @ 15V		D4 3900 D3 4300 D2 4810				
50531	HD 86360	(1900.0) 09 52.9	+12 55	00 25	01 43	03 15W	+12 24	FeNe Clear	80-80	17020	
		1900									
	HD 102870	11 45 29	+02 20								

Spectr. Temp. 30F Dome Temp./Hum. -6C / 59% Transparency Conditions Clear – a few clouds – cloudy 3/2

Focus 395 Shutter opened @ 19:19

Spectr. Temp. 23F Dome Temp./Hum. -8C / Wind from W.

Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
15013/11997	O.K.	V= 5.09	B8IIpe	BC	G=5430 1200/50.8	BS	IIIaJ-e	1	rG	80-S comp. = 2133	comp slwk slwk
							IIIaJ-e				v
		~~V= 5.26~~	~~B9IV~~	~~BC~~	~~G=5430 1200/50.8~~	~~BS~~					
35126	good	B= 1.9	A0IV	BC	G=5430 1200/50.8	BS	IIIaJ-e	1	KK	T=28F, Focus=395 Star close to the Moon → wrong star!!! Plate was discarded, new exp. acquired.	* OK
10004	O.K.	B= 1.9	F8	BC	G=5430 1200/50.8	BS	IIaO-e	1	AmSp-KK		OK
10026	O.K.	B= 1.9	F8	BC	G=5430 1200/50.8	BS	IIaO-e	1	AmSp-KK		OK
10008	O.K./ poor	V= 3.61	F9V	BC	G=5430 1200/50.8	BS	IIaO-e ~~IIIaJ-e~~	1	std. vel.	T=26F, Focus=395 A few clouds. / broken off	OK
							IIaO-e				v
17020	V. poor	V= 5.26	B9IV	BC	G=5430 1200/50.8	BS	IIIaJ-e	1	Ly	Thin clouds – thick clouds.	comp slwk wk

*ID Label poor, i.e. may be crossed with plate # 50533

313

Sun. / Mon.

Date 19/20 Mar. 1989 Observers Yee

Emulsion Batches:

Dec 8m.0 65° 5m.4 25 Tn IIaO-e 118 Mar. 6

5h 68° IIIaJ-e 147 Mar. 2

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Exp.	Exp. Mtr.
50532	HD 44990	(1900.0) 06 19.8	+07 08	19 47.5	21 15	02 24W	+07 04	FeNe Clear	80-80	3400
	↳ Probably set on wrong star. Sidereal time was 1 min. ahead, true R.A. reads 06 24.8									
50533	HD 47105 (γ Gem)	(1989.0) 06 37.0	+16 25	21 37.5	21 42	02 37W	+16 24	FeNe Clear	120-120	35190
	Spot plate 50528T for plate 50532.									
	Spot plate 50526T for plate 50533.									
						5 min error in HrL				

Spectr. Temp. 30 F Dome Temp./Hum. -5C / 66% Transparency Conditions Clear – clouds
Shutter opened @ 19:9
Fans turned on @ 20:20
Focus 395
Spectr. Temp. 28 F Dome Temp./Hum. -6C / 69%

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
3400	V.V. poor	≈6	F7Iab	BC	G=5430 1200/50.8	BS	IIaO-e	1	Ly	So-S comp. = 2237 Ext. poor seeing, impossible to focus	Comp s/w/k s/w/k
35190	poor	B= 1.9	A0IV	BC	G=5430 1200/50.8	BS	IIIaJ-e	1	KK		* ok
									* maybe #50527 ? poor label ID		
Note on plate # 50532 Re "wrong star" Tn (V mag 5.59–6.60; spontaneous period changes) Spectrum looks very late, many narrow lines. ∴ Both noted RA & Dec are correct within our pointing limitations. If in doubt; a field should have been drawn & noted in Remarks.									Mag V = 5.98 but var Sp Class from BS F7Iab–KIIab (Proper motion +0.015"α/yr +.004"δ/yr) V. RA 1990 = 06h 24.7m δ1990 +0705		Reg'lg:k

315 Tues./Wed. Page 1 Echelle obs.

Date 21/22 Mar. 1989 Observers Fds. – Tn/Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	Comp.								20	
	γ Ori	(1989.5) 05 24.6	+06 20.5	19 35	19 48	202W	+06 18			6025
	Comp.								20	197
	Comp.			19 53					20	214
	~~ε Per~~	~~(2000.0) 03 57~~	~~+40 00~~							
	Comp								20	[illegible]
	α Leo	10 07.8	+12 01	20 11	2039	0214	+12 01			6003
	COMP									13
	Flats.				21 27		platform			6000
	Flat									4000
	Flat 1									30000
	Flat 2									30000
	Flat 3									30000
	Flat 4									29500
	Flat					2136				4500

Spectr. Temp. ..... Dome Temp./Hum. ~5C / 60% Transparency Conditions Clear - clouds

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Shutter opened @ 18:15
Fans turned on @ approx. 19:10

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	20		Cross grating tilt setting =0.5202 Echelle tilt setting = 1.840				H=400μ (=0.225 setting)	80μ (=0.269 setting)					3100
		6025	poor	V= 1.64	B2 III				4480 Å				1522
	20	197											3391
	20	214											3296
				V= ~~2.4~~	~~B0.5 V~~								
	20	~~6003~~ ~~B4~~ 52											2993
		~~6003~~ 6003		V= 1.36	B7 V								2072
		13									Note Tertiary Removed for Bln test. Then put back in.		?
		6000										BULB clamped ~~behind~~ ≈1 foot from Lens	
		40000									Fans turned off @ 21 15 EST		2500
		30000											1876
		30000											1867
		30000											1861
		29500											1772
		41500											2605

317 Tues./Wed. Page 2

Date 21/22 Mar. 1989 Observers Fds - Tn/Yee

Emulsion Batches:

Plate No.	Object	R.A. ~~1900~~	Declination ~~1900~~	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	Comp for	α Leo 2000		21 43		E +		ThA		
	HD 87901 α Leo	~~α Leo~~ ~~HD87901~~	10 07.8 ~~+12~~ 58	21 48	21 58	00 27E	+12 01			8500
	Comp								20	68
	Comp								20	39
	HD 120315 (η UMa)	13 47.2 (1989.1)	+49 23.4	22 12	22 20	03 40 E	+49 20			1000
	HD 120315 (η UMa)	13 47.2 (1989.1)	+49 23.4	22 21	22 55	03 05 E	+49 20			6151
	Comp								20	489
	Comp								20	523
	HD 87901 (α Leo)	10 07.8 (1989.1)	+12 01	23 07	23:20		+12 01			7000
	Comp									559
	Comp									544
	η UMA HD120315			23:30	23:57	0207E				6000
	Comp								20	499
	Comp								20	473
	ζ Her HD147394	16 19.7 2000	+46 19	00 06	00 48	03 45E	+46 17			1000

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions Clear .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
ThA						X grating 0.5202 Echelle 1:840		H=400μ 80μ	4480Å				
		8500		V= 1.36	B7V							T=-0.250	2234
	20	68											3096
	20	39	~~poor~~	~~V=~~	~~B3V~~								2944
		1000	poor	V= 1.86	B3V							cloudy	545
		6151	poor	V= 1.86	B3V							"	2778
	20	489											4355
	20	523											4728
		7000		V= 1.36	B7V							cloudy	2351
		559											4772
		544											4751
		6000											2579
	20	499											4510
	20	473											4398
		1000	soso to poor	V= 3.89	B5V	note (This is magnitude limit of TV guider)						clear sky, * picket-fence problem	556

319 Tues./Wed. Page 3

Date 21/22 Mar. 1989 Observers Fds - Tn/Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.
	Comp.								15	413
	Comp.								15	423
	HD 120315 (η UMa)	(1989.1) 13 47.2	+49 23.4	01 03	01 19	00 47 E	+49 20			5977
	Comp								15	445
	Comp								15	523
	HD 87901 (α Leo)	(1989.1) 10 07.8	+12 01	01 31.5	01 41	03 15 W	+12 01			6007
	Comp.								15	150
	Comp.			01 51					15	166
	β Lib. (HD 135742)	~~(1989.1)~~ (2000.0) 15 17.0	-09 23	01 55	02 350	00 59 E	—			4900
	Comp.								15	46
	Comp.								15	30
	η UMa (HD 120315)	(1989.1) 13 47.2	+49 23.4	02 43	02 55					6073
	Comp								15	126
	η UMa HD 120315	(1989.1) 13 47.2	+49 23.4	02 58	03 10	1 05 W	+49 27			6027
	Comp.								15	160

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions Clear .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	15	413											3525
	15	423											3580
		5977	poor	V= 1.86	B3V								1918
	15	445											3381
	15	523											3553
		6007	poor	V= 1.36	B7V								1423
	15	150											2551
	15	166										Dewar topped before start of comp. T= +0.115	2507
		4900	poor	V= 2.50	B8V							PICKET FENCE!!	1459
	15	46											3182
	15	30										(Lower finder)	2356
		6073	poor	V= 1.86	B3V							Renormalized Cross hair center Picket Fence!!	.
	15	126											3242
		6027	poor	V= 1.86	B3V							T= +0.135	1573
	15	160											3159

321 Tues./Wed.

Page 4

Date 21/22 Mar. 1989 Observers Fdo - Th/Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	comp								20	153
	β Lib (HD 435742)	15 17.0 (2000.0)	-09 23	03 20	04 00	00 26 W	-9 22			494
	Comp.								15	109
	Comp.								15	127
	η UMa (HD 120315)	13 47.2 (1989.1)	+49 23.4	04 10	04 20	02 15W	+49 22			6017
	Comp.								15	138
	η UMa (HD 120315)	13 47.2 (1989.1)	+49 23.4	04 25	04 36		+49 22			6008
	comp								20	360
	η UMA	"	"	04 39	04 50					6005
	comp								20	388
	η UMA	"	"	04 52	05 08					8511
	comp								20	396
	η UMA			05 12	05 25	03 22W				6017
	comp								20	409
	4 FLATS @ 20000									20000
	4 FLATS @ 35000									35000

Spectr. Temp
Focus
Spectr. Temp

Spectr. Temp. ..... Dome Temp./Hum. -9c/80% Transparency Conditions Clear
Fans turned on again @ 03:45
Focus .....
Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	20	153											3453
		4948	o.k.	V= 2.50	B8V							PICKET FENCE Dome T=-10°C H=76% (humidity)	1373
	15	109											3317
	15	127											2592
		6019	o.k.	V= 1.86	B3V							Picket fence!!! Fans turned off.	1444
	15	138											2470
		6008		V= 1.86	B3V							T=-0.22? fine.	1516
	20	360											3468
		6005		1.86	B3V								1484
	20	388											3420
		8511		"	"								2143
	20	396											3493
		6017		"	"								1542
	20	409											3477
		20000	≈ 30s									1426, 1429, 1420, 1420	
		35000	≈ 45s									2564, 2564, 2559, 2567	

Note - Not backed up because Ret.PAT is too large, ie 177 Kbytes. It is a previous large scratch file + tonight's work.

323 #1 NEW scratch file setup

wed/Thurs

Date 22/23/MAR.1989. Observers Fld.:Tn.....

Emulsion Batches:

.....

.....

.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.
2L	1st Flat prompted one			18 49		0 0	platform			2 24K
4	FLATs @ 24000 expnder counts			18 52	18 57	"	"			24K/3 30sec
4	FLATs @ 30 000	"	"	18 58		"	~~[illegible]~~ 4			30K/
596C	COMP								28s	232
662S	EPer HD24760	3" 57.0 2000	+40.00	19 16 10	19 35	3 22 W	+39 58			7027 CK
728C	COMP								20	284
794C	COMP								20	270
860S	γ ORI	5 25	+6 21	19 43 24	19 48 41	0209W				7009
926C 992C	COMP								20	257
1058S	EPer	03 57.0	+40 00	19 54 19	20 12 49	04 00W			20	6957
1124C	COMP								20	250
1190C	COMP								20	353
1256S	γ ORI	5 25	+6 21	20 17	20 23	02 43W				7019
1322C	Comp									
1388C	Comp	for EPers		20 28						307

Spectr. Temp. ..... Dome Temp./Hum. -4C / 57% h Transparency Conditions .. Fine 324

Focus .....

Light SSE wind [Fans on & Dome opened @ 17:45]

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Mag.	Sp.	Inst. TILTS	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		x 24K						H=400μ 80μ			Flats using	Bulb in front of Lens	1674
		24K / x 30secs				x= echelle=	600, 4480		4480Å			1705, 1701, 1710, 1702	
		30K /										2142, 2132, 2134, 2138	
	20s	232										Fans off now.	2947
		7027	OK	2.89	B0.5V						Fds	Nice (YA HOO!)	1945
	20	284										Top up of Dewar after this	3527
	20	270											3366
		7069		1.64	B2III						Fds	(Dewar temp. -0.190 to +0.260)	2115
	20	257										Fans on again	3607
	20	6957		2.89	B0.5V						Fds	1st Comp 3626 cnts	1729
	20	250											3135
	20	353											3199
		7019		1.64	B2III						Fds		1941
													3194
		307											3646

325 #2

Date 22/23 MAR..... Observers Flds..Tay.....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. ~~1900~~ 2000	Declination ~~1900~~	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing
1454S	G Per	3 57	+40	20:30	20 48 10	04 35 W				6007	OK
1520C	comp							ThA	20	344	
1586C	comp			20 51					20	345	
1652S	eta Aur HD32630	5 06	+41 13	20 53	21 19	03 58 W				7007	OK
1718C	comp								20	380	
1784C	Comp for Last γ ORi 1484			21 23					20		
	γ ORi	05 25.0	+6 12	21 25	21 35	W				6987	P
	comp								20	370	
	comp								20		
	α Leo	10 07.8	+12 02	21 42	21 48	0 36 E				7580	
	comp								20	150	
	comp								20	152	
	η UMa	13 47.2	+49 23	2200	22 11	3 50 E				7004	
	comp								20	200	
	comp			22 18					20	320	

Spectr. Temp.
Focus.....
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg/Mag.	Sp.	Inst.	Grating/Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		6007	OK	2.89	B0.5V			400μ H=.225 80μ Width=.269			Fds	Very low in west	1362
ThA	20	344											3423
	20	345											3553
		7007	OK	3.2	B3V						Fds		1678
	20	380											3272
	20												3326
		6987	poor	1.64	B2III						Fds	hazy low	1543
	20	370											3867
	20												3827
		7580		1.3	B7V						Fds		2203
	20	150											3086
	20	152											4037
		7004		1.8	B3V						Fds		2737
	20	280											4500
	20	320											4608

327 #3

Date 22/23. MAR..... Observers .....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. ~~1985.~~ 1989	Declination ~~1985.~~ 1989	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Spectr. Temp. / Focus / Spectr. Temp.
	α Leo	10 07.8	+12 02	22 21	22 26					7000	0
	comp								20	500	
	comp								15	300	
	η UMA	13 47.2	+49 23	22 38	22 48	E				7514	
	comp								15	322	
	comp								15	393	
28405	22 DRA MD 155763	17 08	+65 42	23 02	23 41	0540E	+6541			5684	
2906C	comp								15	320	
2972C	comp			23 51					20	654	
	η UMA	13 47.2	+49 23	23 54	00 03	0158E	+			7513	
	comp								15	520	
	comp								15	533	
	~~α Leo~~ comp								15	452	
	α Leo	10 07.8	+12 02	0017	00 23	201W				8000	
	comp								15	1000	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Fans still on

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		7000	OK	1.3	B7V B		SAME setup parameters for the night						1957
	20	500											5375
	15	300											3543
		7514		1.8	B3V						Fds		2968
	15	322											3748
	15	393											4010
		5684		3.2	B6III						Fds	α 5.2 → 4.2 set Finder Normalized δ 5.3	2103
	5	320											3796
	20	654										Those are Reversed	5275
		7513		1.8	B3V		(Finder Corrs α 4.8 δ 5.4)				Fds	now finder set δ 4.8 ~~α 5.3~~	2499
	15	520										Reversal α → δ ?	3951
	15	533										Look at Tan Her	4125
	15	452									echellgrating at 1.841	grating not subject → mike may have moved it	3255
		8000		1.3	B7V						Fds	Finder Set α 5.1 δ 5.1	2221
	15	1000											3355

329 #4

Date 22/23 MAR 1989 Observers .....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. ~~1900~~ 1989	Declination ~~1900~~	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	Comp for			00 30		0300 E	-9 22		15
	β Libra	15 17.00	-09 23	00 35	01 13	E			
	comp								15
	comp								15
	η UMA	13 47.2	+49 23	01 24 56	01 31 23	00 30 E			
	comp								15
	comp								15
	22 DRA HD 155763	17 08	+65 42	01 51	02 24	E			
	comp								15
	comp								15
	Tau Her HD147394	16 19.7 2000	+46 19	02 48 46	03 27 43	E	+46 19		
	comp								15
	comp								15
	β Libra	15 17	-09 23	03 38 30	04 00	00 30 W			
	comp								15

Spectr. Temp.
Focus .....
Spectr. Temp.

Exp. Mtr.	Sc
6503	A
559	
615	
7520	
598	
594	
7001	F
582	
584	
4439	W
621	
614	
7007	W
635	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	15											normalized α 4.8 New set δ 5.1	3759
		6503	poor	2.5	B8V						Fds	very low hazy too	1821
	15	559											4243
	15	615											4266
		7520									Fds		1883
	15	598											4039
	15	594										Dewar Filled @ 0133 Fans turned off @ 0145	4145
		7001	Fine	3.2	B3V						Fds	Dewar T Range 0.259 to 0.308	2490
	15	582											3994
	15	584											4033
		4439	very good	3.89	B5V	TV image ok tonight on this star					Fds	new set α 4.8 δ 5.3	1536
	15	621											4059
	15	614											4118
		7007	very good	2.5	B8V						Fds	offset α 4.9 δ 5.3	1944
	15	635											3968

331 #5

Date ..... Observers .....

Emulsion Batches:
.....
.....
.....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	Comp			04 04 40					15	
	η UMa	13 47.2	+49 23	04 07 23	04 14 19	2 13 W				7496
	comp								15	763
	comp		1989	04 20					15	760
	22 DRA	17 08.8	+65 42	04 24 28	04 47 23					7001
	comp								15	694
	comp								15	690
	η UMA	13 47.2	+49 23	04 52 16	05 01 49					8002
	comp								15	801
	4 FLATS @ 45000									
	4 FLATS @ 41000									
	4 FLATS @ 22000									
	GLONG STARTED after closeup & top up. Dark slide in.									

Spectr. Temp. ..... Dome Temp./Hum. 7.7C/85%(H) Transparency Conditions .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	15												4121
		7496		1.8	B3V						Fds	reset crosshairs α 5.2 δ 5.2	1750
	15	763											3894
	15	760									↓		4074
		7001	OK	3	B3V	B6III					Fds	Dewar Temp −0.251 → +0.310	1727
	15	694											3999
	15	690											3966
		8002	good	1.8	B3V						Fds.		2163
	15	801											3572
												2749, 2843, 2853, 2840	
										Dewar −250 +317		2488, 2448, 2445, 2428	
												1212, 1260, 1320, 1322	

Ret. to DHT has 743552 by tos. / no backup done

333 #1

Thurs / Fri

Date MAR 23/24.1989. Observers T.T.

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.	Sc
2L	1st Flat prompted			190835			platform		45sec		
68C	1st Comp	03 57.2 1989.5		1920				Th H	20sec		
134S	ε Per HD24760	03 57.2	+39 59	19 29	19 56	03 47W	+39 59			6000	F2
200C	Comp								20	336	
266C	Comp	1989.5							20	332	
332S	χ ORi	05 24.6	+06 20.5	20 06 16	20 34 24	03 00W	+6 19			7200	0
398C	Comp			20 06 16					20	~~270~~	
464C	Comp			20 42 ~~47~~					20		
530S	ε PER	03 57.2	+39 59	20 4247	21 11	05 02W	+39 59			1354	0
596C	Comp			21 12					20	406	
662C	Comp			21 15 38					20	410	
	χ ORi	05 24.6	+06 20.5	21 18 39	21 43	04 07W				1032	Sc 5
	Comp								20	412	
	Comp								20	427	
	α LEO	1989.5 10 07.8	+12 00	21 51	22 09	00 07E				7000	0
	COMP								20	224	

Spectr. Temp. ..... Dome Temp./Hum. 0 °C/H=57% Transparency Conditions sl. Haze - thin cloud

Focus .....

Fans and Dome opened "shutters" ~~18:30~~ 18:30

Spectr. Temp. ..... Dome Temp./Hum. .....

Top up of Dewar @ 18 45

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	45sec					Echelle 1.841	X grating	80μ	600, 4480 4480Å			Bulb in front of Lens Stellar MODE	2027
Th/A	20sec												3364
		6000	* Fine	2.89V	B0.5V						Flds Pym	sl haze/seeing * cloud going	Fine 1757
	20	336										T range = -0.139 to +0.227	~~3305~~
	20	332											~~3~~401
		7200	OK	1.64V	B7V							Fans off @ 20:20 FINE	2153
	20	~~370~~											3673
	20												3654
		1354	OK	2.89V	B0.5V	Note TV image still visible through when Exp meter count @ (1 cnt in 2 secs)					Cloud	Semi cloudy	479
	20	426											3853
	20	410										Thickening cloud	3766
		1032	SO SO ~~OK~~			Image just visible (1 cnt / 3 secs on Exp meter)						Cloudy	293
	20	412											3894
	20	427											4262
		7000	OK	1.3	B7V								2469
	20	224											3513

335 #2

Date MAR. 23/24/89 Observers T.n

Emulsion Batches:

Plate No.	Object	R.A. ~~1900~~ 1989.5 ~~1900~~	Declination	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	Comp							ThA	20s	62 note
	ETA UMA	13 47.1 ~~13 47.4~~	~~+49 22~~	22 26	22 59	02 59 E	+49 21			6998
	Comp			23 02					20	61
	Comp			23 09					20	59
	α Leo	10 07.8	+12 01	23 12	23 29	01 10 W				6010
	Comp								20	607
	4 Flats @ 35,000 to 40,000 cnts (exp meter)			23 42		0 0	platform			
	4 Flats @ 20 Kcnts			23 49	23 55	"	"			

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ... Cloudy, thinly .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. -2°C / 70%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Rg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
THA	20sec	~~62~~ note low count											3218
		6998	soso	1.86	B3V							more cloud.	2500
	20	61											3080
	20	54											3126
		6010	soso	1.5	B7V								1949
	20	~~6070~~											3282
											ADU → 2600, 3128, 2546, 2335		
											1524, 1575, 1719, 1676		
					Total = 253,568 bytes.				Backed up on new floppy @ MAR2389.DAT				

337

Sun – Mon

Date MAR 26/27/89 ... Observers ..Tn.....

Emulsion Batches: 2.52, 0.10 23hrs N_2H_2 gas

Dev MAR29 sec III a-d-e-f-g ..1.47 – MHR26

Dev Mar29/sec IIa a-e ...1.18 – MHR19

Polaris @ 23 hrs 9h W reversal Tn 1.37, 0.15

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Spectr. Temp.
50534	γ GEM HD 47105	06 31.9	+16 29	19 43	19 49	01 13 W	+16 26	clear FeNe	140-140	4 4000	
50535	HD 23862	03 43.2	+23 50	20 01	20 52	05 08 W	+24 06	"	140-140	7250	
50535T	Spot Cal'n for 50534–35.				15 min @ 04	17.5V 3900	15V 4300	15V 4810		-	
FM000 166.TN 167.TN	HD 82582*	09 34.3 2000	+46 54	21 14 23	*Header Label HD 252	00 17 E	+46 56		Int ×4	31×31	
167.TN	"	"	"	≈ 21 20		≈ 0 0	"		"	31×31	
	Note. 1st 4 Frames of 167.TN are same as 4 Frames of 166.TN							Dome	T=+2°		Light
50536	HD 87822	10 02.5	+32 06	21 45	23 38	01 30 W	+31 38	FeNe Clear	30-30	5000 4950	
50536T	Spot Cal'n for 50536-39.				15 min @ 15V	P4 3900	D3 4300	B2 4810			
50537	HD 101177	11 33.5	+45 40	23 42	01 47	02 11 W	+45 09	FeNe Clear	30-30	4000 4050	
168.TN	HD 128718	14 36.9 2000	+42 50	01 55		00 40 E	+42 51			31×31	
50538	HD 8890	01 22.6	+88 46	02 06	02 14	11 40 E	Reversed +89 15	FeNe Clear	80-80	10,800	
50539	"	"	"	02 20	02 31	11 33 E	"	"	80-80	9 10K	
50539F	Focus test					0 0			240		

Spectr. Temp. ...42°F..... Dome Temp./Hum. +36°F / 76% Transparency Conditions ....Semi cloudy / hazy Then hazy...

Focus ..392., 394 for G2, 393

Spectr. Temp. ..37.5°F..... Dome Temp./Hum. +32°F / 92%

Dome shutters opened and Fans on ~~@ 18 hrs EST~~ - No @ 18:40 EST

Comparison Type/Filter	Comparison Exp.	Exp. Mtr. B filter	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
clear FeNe	140-149	7 40000		1.9	A0 IV	BC	G=5430 1200/50.8	BS	IIaO-e	1	Asm Sp KK	* some cloud 140 secs FeNe = 2580 cnts	
"	140-149	7250	OK	5.0	B8 Vpe	"	"	"	"	1	Rg pgm	Cloud again	
150 4810		–							IIaO-e				
	Int x4	31x31	OK	6.39	A5	Box looks (no doubling) good		150u	4 frames in "N" mode			Through thin cloud, after thick cloud	
	"	31x31	OK	"	"	"	"	"	"	" added to 1st 4		Now completely clear	
Dome T=+38		Light SE breeze, Dome facing WNW								Humidity = 85%		weather radio says wind E @ 15 kms/hr @ 22 hrs	
FeNe clear	30-39	5000 4950	50-50	6.60	F5	BC	G=4238 830/40.2	BS	IIaO-e	1	Wat pgm	Set 394 T=39°F	
B2 4810									IIaO-e			Fans turned off @ 22 hrs	
FeNe clear	30-39	4000 4050	OK-poor	6.9	G0	BC	830/40.2	BS	IIaO-e	1	Wat pgm		
		31x31	OK	6.7	F2	Box OK		150u	4 frames in "N" mode			Light E wind	
FeNe clear	80-89	10,800	50-50	1.9	F8	BC	1200/50.8	BS	IIaO e	1	Asm Sp KK	T=393 T=38°F	
"	80-89	7 10K	very poor	"	"	"	"	"	"	1	"	Cloudy	
	89-91					"	"	"	IIaJ	1	Seeing goes very v. bad quickly, OK		

blue end more Red
centered then is Red end

339

Fri./Sat.

Echelle Letter obs.

Date 31 Mar./1 Apr. 1989. Observers Tm-Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.
Ø2	Flat - prompted Flat					0 0	platform		60sec	≈40K
68C	Comp.			01 21					20	125
1245	α Boo (Arcturus)	14 15.2 (1989.5)	+19 14	01 23	01 36					≈8000
200C	Comp.			01 37					20	136
266C	Comp			02 10						
3325	η UMa	13 47.2 (1989.1)	+49 23	02 13	02 29	01 03W	+49 22			8000
398C	Comp.			02 31						
464C	Comp.			02 37					20	217
~~530~~	β Lib.	15 17	-09 23	02 39	02 44					370
5305-7285	Flats x4	Bulb clamped in front of lens.		02 51					(1min	20K, 589

Spectr. Temp. ..... Dome Temp./Hum. 0°C/90% Transparency Conditions Very hazy → cloudy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 0°C/93%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	60sec	≈ 40K				Reticon Echelle	600, 4465	400u Length 80u	4465Å				1861
	20	125											2017
		≈8000	V. poor										784
	20	136											2032
													1981
		8000	poor	V 1.8	B3V						Pds	~~[illegible]~~	1235
													2128
	20	217											2096
		370	V.V. poor	V= 2.5	B8V						Pds	T = +0.130 Cloudy ~~[illegible]~~ Discard.	
(1min		20K, 589),		(≈ 30K cat's exp meter,			979)	(37K, 1138)		(40K, 1247)			
								Backup as MAR3189.DAT					

341 Page 1

Sat - Sun

Date Apr. 1/2/89 ..... Observers R.K./J.M./Yee .....

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Spectr. Temp. / Focus / Spectr. Temp. Exp. Mtr.	See
	Focus Tests	in board - outboard - Remember Brass knobclamp before adj -									
2 0	Flat, Dark after this (#68)								45	40,000	
134 2	~~α CMi A (Procyon)~~ Comp. -.54	~~07 38.8 (1989.5)~~	~~+05 15~~						25	232	
200 3	α CMi A (Procyon)	07 38.8 (1989.5)	+05 15	20 23	20 36	01 13W	~~01 13W~~			20,000	
266 4	Comp. -.58			20 37					25	230	
332 5	α CMi A (Procyon)	07 38.8 (1989.5)	+05 15	20 38	20 53	01 30W	~~01 30W~~			20,000	
398 6	Comp. -.30			20 54					25	236	
464 7	Comp. .00			21 01					25	245	
530 8	HD 47105 (γ Gem)	06 31.9 (1900.0)	+16 25	21 04	21 40	03 27W	~~03 27W~~			5457	
596 9	Comp. .26			21 40					25	298	
662	Comp. -2.07			21 46					25	67	
728	HD 124897 (α Boo)	14 15.2 (1989.5)	+19 14	21 49	22 11	03 39E	+19 14 ~~03 39E~~			6692	
794	Comp. -0.71			22 12					25	65	
860/926/992/1058/1124/1190	Flat #1/2/3/4/5/6									20,000/100,000	
	Comp. 0.13			23 15					25	63	

Spectr. Temp. ..... Dome Temp./Hum. +01°C / 60% Transparency Conditions .. Hazy - some clouds - cloudy

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
						X+H 0.5224 Echelle 1.750	600, 4465	400u length 50u	4465Å				
	45	40,000											1132
	25	232										T = -0.111	1943
		20,000		V= 0.38	F5IV							T = +0.022 SC -27.87 2447618.5634	3006
	25	230										T = +0.067	1993
		20,000		V= 0.38	F5IV							T = +0.069 -27.89 .5746	2235
	25	236										T = +0.082	2031
	25	245										T = +0.084	1965
		5457		V= 1.9	A0IV						Dome T=30F	T = +0.109 Clouds -29.81 -0.011 ≤ T ≤ +0.147 .5975	823
	25	298										T = +0.074	1990
	25	67											1802
		6692		V= -0.04	K1.5III							T = -0.021 Cloudy. Hydra Label HD 124792	593
	25	65										T = -0.144	1903
		20,000/100,000/30K/75K/50K/60K				ADCU = 740/3911/1146/2913/1946/2330						T = -0.055	
	25	63											2060

343 #2

Date APR 12/89 Observers Yee/Tu

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	HD87901 (α Leo)	10 07.8 (1989.5)	+12 01	23 18	23 45	02 03 W				19700
	Comp. -0.18			23 46					25	120
	Comp. -0.23			23 52					25	101
23	HD120315 (η UMa)	13 43.6 (1900)	+49 49	00 09	01 00	00 23 E				19933
24	Comp. -3.15			01 01					25	86
	Comp. -3.54			01 06					25	86
	HD137909 (β CrB)	15 27.4 (1989.5)	+29 08.5	01 13	02 01	01 00 E				2478
	Comp. -3.01			02 02					25	88

Spectr. Temp.
Focus
Spectr. Temp.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions semi-clear - cloudy .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. -1°C / 80%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		19700		V= 1.36	B7V							Comp done before as usual	2939
	25	120											2000
	25	101											1891
		19933		V= 1.86	B3V							α 4.8 δ 5.4	3891
	25	86											1908
	25	86		~~V= 3.68~~	~~F0p~~							T=-0.080 -0.082 ≤ T ≤ +0.197	1784
		2478		V= 3.68	F0p	Terminate exp. due to clouds						(α 4.8 δ 5.3 Finder set)	585
	25	88										Shift during exposure = -0.6 pix	1928

Buried upon in Old Floppy "Archive" as HPA289.DAT
1st Part duplicated on this floppy

Best focus at 0.322 for 39°F

345 Tue./Wed. Echelle focus test

Date 4/5 Apr. 1989 Observers Tu/Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	Hartmann focus test #1			20 24.5	Camera focus = 0.327 Pixel shift = −0.24		T=46F		15
	Focus test #2			20 28.5	Camera focus = 0.327 Pixel shift = −0.25		T=46F		15
	Focus test #3			20 39.2	Camera focus = 0.322 Pixel shift = −0.22		T=46F		15
	Focus test #4			20 43.5	Camera focus = 0.322 (Set by approaching from <0.3) Pixel shift = −0.20		T=46F		15
	Focus test #5			20 55.2	Camera focus = 0.302 Pixel shift = 1.54		T=46F		15
	Focus test #6			21 00.5	Camera focus = 0.322 Pixel shift = 0.01		T=46F		15
2L	Flat Field	Prompted		2349	Bulb in front of lens			TUNG	175s
	Two 1st Flats were picket fenced. 1st one saved.							Tung	
	Flat			0122				Tung	
	Flat			0126				Tung	
	Flat			0128					

Spectr. Temp.
Focus
Spectr. Temp.
Exp. Mtr. Se
Exp meter
10k
30k
15k
25k
12k

Spectr. Temp. ..... Dome Temp./Hum. 8C/73% Transparency Conditions Cloudy - mostly

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. /88%

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	15				Echelle grating = 1.810 X-grating = 0.4007		H=400μ (=0.225 setting)	W= 50μ (=0.281 setting, actual reading = 0.2797)				Position of slit = 0.2037	
	15						600,5870		5870A			Brass knob for camera focus was loosened for the first five tests. Re-tightened before the 6th test	
	15												
(mm 503)	15												
	15												
	15	Expander										Brass knob for camera focus tightened before test.	
TUNG	1788	≈10K										Temp still going down T = -0.830 Heater On	3188
			Temp finally stabilized @ 00 30 or so.										
Tung		≈30K											
Tung		≈15K										T = +0.053	7086
Tung		25K										Picket fence	12848
		12K											5242

Wed./Thur.

Date 5/6 Apr. 1989 Observers Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	Hartmann focus test #1			21 02.3		Camera focus = 0.322 Pixel shift = -0.11	T=43F		15
	Focus test #2			21 22.0		Camera focus = 0.322 Pixel shift = 0.02	T=42F		15
Fri./Sat.									
7/8 Apr 1989		Yee							
	Hartmann focus test			17 [redacted] 33.9		Camera focus = 0.322 Pixel shift = 0.01	T=39F		15

Spectr. Temp.
Focus
Spectr. Temp
Exp. Mtr.

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions ...Cloudy.....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	15				Echelle grating = 1.786 X-grating = 0.4007		H = 400μ (=0.225)	W = 50μ (=0.281, actual setting = 0.2797)				[redacted] Echelle grating was not set at 1.810.	
	15						600, 5870		5870 Å			Echelle grating re-set to 1.810.	
					Echelle grating = 1.810 X-grating = 0.4007		H = 400μ (=0.225)	W = 50μ (=0.281, actual setting = 0.2797)					
	15						600, 5870		5870 Å				

349 Fri./Sat. Page 1

Date 7/8 Apr. 1989 Observers KK-Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.	Exp. Mtr.
	Flat #1								30	
	Flat #2								10	
	Flat #3								10	
	Comp			20 50					30	
	HD 47105 (γ Gem)	(1900.0) 06 31.9	+16 29	20 53	21 20	W	+			1031
	Comp.			21 22					30	533
	HD 47105	(1900.0) 06 31.9	+16 29	21 25	21 50	W	+			521
	Comp.								30	509
	Comp.			22 03					30	427
	HD 87901 (α Leo)	(1900.0) 10 03.0	+12 27	22 07	22 23	01 05 W	+12 00			1157
	Comp.			22 25					30	292
	HD 87901 (α Leo)	(1900.0) 10 03.0	+12 27	22 29	22 45	01 27 W	+12 00			1095
	Comp.			22 46					30	299
	Comp.			22 58					30	133
	HD 137909 (βCrB)	(1900.0) 15 23.7	+29 27	23 04	00 19.5	01 20 E	+29 07			2522
	Comp.								30	266

Spectr. Temp. ..... Dome Temp./Hum. -1.C. / .76%. Transparency Conditions Clear

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. .....

Shutter opened @ 18:40
Fans turned on @ 21:26

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
	30			Echelle grating = 1.810 X-grating = 0.4007			H=400μ (=0.225)	W= 50μ	(=0.281, actual setting = 0.~~2997~~ 280)				4886
	10						600, 5870		5870 Å				1260
	10											T=+0.102	1275
	30		(3")									T=+0.130	2677
		10031	O.K.	V= 1.9	A0V						Asm Sp - KK	T=+0.147	2517
	30	533										T=+0.186	2708
		5621	poor	V= 1.9	A0V						Asm Sp - KK	T=-0.055	1799
	30	509											2568
	30	427											2580
		10157	poor	V= 1.36	B7V							T=+0.076	2761
	30	292											2639
		10095	poor	V= 1.38	B7V							T=+0.168	2667
	30	299											2682
	30	133											2800
		2522	poor	V= 3.66	F0p						Asm Sp - KK		1432
	30	266										T=+0.253	2594

351 Fri./Sat. Page 2

Date 7/8 Apr. 1989 Observers KK-Yee

Emulsion Batches:

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
	HD 137909 (β CrB)	(1900.0) 15 33.7	+29 27	00 31	01 33	01 07 E	+29 07		
	Comp.			01 41					30
	Flat #4/5/6/7			02 50			Platform	20/20	20/20
	Flat #8/9/10/11			02 57			Platform	10/10	10/10
	Hartmann focus test			03 36.8	Camera focus = 0.322 Pixel shift = −0.39		T = 30F		15
	Sat./Sun. 8/9 Apr. 1989 Yee								
	Hartmann focus test #1			19 01.6	Camera focus = 0.322 Pixel shift = −0.07		T = 39F		15
	Focus test #2			00 10.8	Camera focus = 0.322 Pixel shift = −0.17		T = 34F		15

Spectr. Temp.
Focus
Spectr. Temp.

Exp. Mtr.	S
2520	A
6916/6916	
3569/3595	

Spectr. Temp. ..... Dome Temp./Hum. ..... Transparency Conditions . Clear .....

Focus .....

Spectr. Temp. ..... Dome Temp./Hum. 30. F. / 90% ..

Comparison Type/Filter	Comparison Exp.	Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
		2520	poor	V= 3.66	F0p						Amp - KK	T=+0.226	1173
	30												2527
20/20/20/20		6916/6800/7117/7171					ADU = 2679/2707/2784/2811					The lengthy delay was due to a mishap: the flat field lamp was not clamped properly & dropped before starting the first flat field, the bulb was shattered & replacement and clean-up took a long time!!!	[redacted]
10/10/10/10		3569/3585/3581/3593					ADU = 1404/1414/1412/1419						
	15											$-0.232 \leq T \leq +0.276$	
	15												
	15												

353

Date 10/11 Apr. 1989 (Mon./Tues.) Observers Yee

Emulsion Batches: IIaO-e IIf Mar. 19 1.65, 0.24

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Comparison Exp.
			(1900.0)						
50540	HD 103095	11 47.2	+38 26	23 29	01 10	02 20 W	+37 51	FeNe Clear	Diff. OUT 60-60
50540 T	Spot calibration for 50540 + 44,45 + 47,48 See next logbook.				15 min @ 15 V	D4 3900 D3 4300	D2 4810		

Spectr. Temp
Focus 3
Spectr. Temp

Exp. Mtr.	S
6009	

Spectr. Temp. 34F Dome Temp./Hum. -3c / 92% Transparency Conditions A few clouds – cloudy 354

Focus 394 Shutter opened @ 22:37

Spectr. Temp. 32F Dome Temp./Hum. -4c / 95% Fans turned on @ 23:37

Exp. Mtr.	Seeing	Ptg. Mag.	Sp.	Inst.	Grating/ Tilt	Slit	Emulsion	P.H.	Program	Remarks	Quality
6009	V. poor	V= 6.45	G8Vp	BC	B=5430 1200/50.8	BS	IIaO-e	1	std. vel ? KK	to-s comp. = 1489	composite S/wk
		B= 7.20					IIaO-e				Focus off?

Emulsion Batches:

.....

.....

.....

Date ..... Observers .....

Plate No.	Object	R.A. 1900	Declination 1900	Starting Time E.S.T.	Ending Time E.S.T.	Hour Angle End	Declination	Comparison Type/Filter	Ex

.....

.....

.....

on	Comparison Type/Filter	Comparison Ex